BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, JANUARY 2, 1937

ON SURGICAL DIAGNOSIS*

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Many of the higher examinations in medicine and surgery include a session devoted to the consideration of a single "long" case, which the student is instructed to discuss on paper under the following headings: history, symptoms, signs, diagnosis, differential diagnosis, prognosis, and treatment—seven divisions, of which diagnosis is the central one. From whatever aspect we view the matter diagnosis occupies the dominant position—the keystone of the arch, the summit of the pass. On one side lies investigation, on the other treatment. For the patient diagnosis is the plateau to which he climbs from the valley of the shadow, plodding behind the guide, following him round what may appear unnecessary bends in the rocky track, deceived from time to time by summits which are not the real one; on the plateau he rests while his guide consults map, studies the weather, and plans the route by which they shall go together down the slopes of treatment. Even more for the doctor is diagnosis a culminating point. It is preceded by the collection of a great number of facts whose mutual relevance may not be apparent; it involves a decision, based on these facts, upon the aetiology and pathological nature of a clinical problem; upon the decision follows action.

The Consultant's Part

Patients often say that doctors are interested in diagnosis only, and those concerned with medical education complain that too much time is spent in attachment of labels and in hair-splitting distinctions between minor subdivisions of processes essentially alike. But while it should never be too much in evidence, diagnosis must remain of cardinal importance in medical training and practice, for it presents the acme of professional skill. On the one hand may lie arid science, on the other rule-of-thumb therapeutics; but in the central point, diagnosis, the doctor is called upon to exercise all his critical faculties, his practical experience, his wisdom born of years of consideration of similar problems, his power of clear decision. In diagnosis he is Homo Sapiens, not Homo Quaerens or Homo Agens. The two sides of the watershed may call for knowledge, technical skill, and hard work, but wisdom alone will avail him on the summit.

In many highly organized foreign clinics the whole of the processes preliminary and subsequent to diagnosis are handed over to juniors, or at any rate to executive workers. A case is placed provisionally in a general category by someone of intermediate status and then passed along a chain of -ologists and laboratory workers, who pile up a dossier of encyclopaedic completeness. When diagnosed it is turned over to the remarkably efficient treatment machine of the institution and dosed or pruned upon lines that have been worked out in detail. But the analysis of the dossier, the interpretation and correlation of all the facts it contains, and the establishment of the diagnosis is the work of chief or chiefs in consultation. Hence the justification and the need for that vanishing type of wise and learned man whom we call the consultant, as distinct from the specialist. The specialist may thrive on knowledge and skill; without wisdom the consultant is useless. The specialist provides the detailed information. He is the permanent expert, the head of a civil service department, while the consultant is the cabinet minister who, guided and helped by the experts, must decide policy.

Is there anything special about surgical diagnosis? Surgery, broadly defined, is a method of treatment by manual processes. Its territory is very largely on the sunny side of the watershed, with smaller provinces on the summit and beyond. Surgery does not, like medicine, look upon diagnosis as the chief expression of its art, nor, like neurology, as an end in itself, but rather as a means to an end. A correct decision concerning the cause and pathology of a symptom-complex is of great importance, but only in so far as it points the way to correct treatment. And decision is more important than correctness, because very often in surgery treatment must be immediate to be effective, and that ultimate solvent of diagnostic difficulties, the lapse of time, is apt to lead to the final court of pathological exactitude—the post-mortem room.

The surgeon who is considering a difficult and puzzling case confronts two separate questions. First, "What is the probable nature and cause of this trouble?" He must answer this for his own sake and that of his students, and if he answers it definitely, whether that answer be ultimately right or wrong, both he and they will have learned something. Secondly, "Which of the possible alternatives is the most urgent and the most dangerous, even if it be not the most likely?" His answer to this is of vital importance to the patient, and upon it he must plan his line of action.

Sudden Abdominal Upsets

The need for immediate action, which in surgery very often means operation, is most apparent in those sudden abdominal upsets which we class provisionally as the acute abdomen. Here the problem before the surgeon is, in its simplest form, the following: "While the exact diagnosis is by no means clear, and for the present lies between A, B, and C, to what extent is the trouble likely to assume more serious form in the next twenty-four hours; is the case one that can be watched at home or as an out-patient, or should it be admitted to a hospital or a nursing home?"

The commonest example of such a difficulty is the case of possible acute or subacute appendicitis, one that when we first see it may very well be a true inflammatory lesion

* Address to the Eastbourne Medical Society.

in its early stages, or some upset in the mechanical category such as food poisoning or caecal distension due to constipation. I am presuming that doubt still remains after a very careful analysis of the history and a thorough search for physical signs, which will always include a rectal examination. I must apologize for alluding to such a hackneyed subject as the necessity for rectal examination in every case, but it is depressing to find how often this precaution is omitted and how often the omission has serious or even fatal consequences. Inflammation in the pelvic appendix is not appendicitis as the textbooks describe it and the student learns it; there is no right iliac fossa pain, no abdominal tenderness, no muscle guarding. It starts with the initial stages of colic and vomiting, symptoms which it shares with every insult to the viscera, from tinned salmon to strangulated hernia; it passes through the stages from inflammation to abscess, guarded from all discovery except by a finger in the rectum, and only betrayed by a general appearance of illness; and it only reappears in the abdomen as a large abscess or a general peritonitis.

Decision to Operate

The case, then, presents no obvious physical signs. If we make it a rule to wait till the diagnosis is clear we shall very often be too late for a clean operation without tubes, or a safe one with a mortality under 1/2 per cent. If we admit every one we soon render our hospitals unmanageable and earn a reputation with our private patients for needless expense. The decision will be guided by many things: by the distance and nature of the patient's home, by the intelligence of his relatives, and by the time of day—in general, by the time that is likely to elapse before we can re-examine him or receive a reliable report on his condition. But above all it will depend upon our personal assessment of the probable course of events in the next few hours—that is, upon our clinical instinct or sense built up from accumulated experience of similar cases, and independent to a large extent of the intellectual process of reasoning. When we cannot decide, our only safe course is to place the patient in surroundings where his temperature and pulse can be recorded at regular intervals, where tests such as the diagnostic enema can be applied as they are needed, and where he is constantly under the observation of a trained assistant. We take this step early rather than late, bearing in mind that should he get worse and require operation he will then be less able to stand transport, and that the risk of operation will be increased by an immediately precedent journey. As experience accumulates the number of cases in which we defer judgement will decrease, but to "watch under hospital conditions" is always a safe decision.

Another difficulty arises, particularly in children, at a later stage of similar cases, when it has become clear that there is an inflammatory lesion in the abdomen but not certain whether this is an infected appendix or possibly a group of tuberculous glands with secondary invasion by septic organisms, or a pneumococcal peritonitis. It is not my purpose here to discuss the differential diagnosis of these conditions; in the great majority they can be differentiated, and the last two are preferably treated by means other than operation. But when doubt remains we have to balance the relative risk of exposing a group of inflamed glands or draining a pneumococcal peritonitis on the one hand or of leaving a gangrenous appendix or an early septic peritonitis on the other. There is no need to state the answer; where this is the alternative we must operate.

Recognition of Early Intestinal Obstruction

A problem of far greater difficulty in my opinion is the distinction between an early intestinal obstruction and other conditions giving rise to colic and vomiting, without localized pain or tenderness, abdominal rigidity, or any alteration in temperature or pulse rate. I will presume that any additional evidence pointing to the likelihood of obstruction such as a tender swelling in a hernial orifice, the scar of a previous operation, or a history of tuberculous peritonitis is absent. In such a case the chief things we have to exclude are intestinal colic due to swallowed irritants, drugs or foods which are infected or inimical to the particular patient, and colic in some other hollow tube in the abdominal cavity, such as the cystic duct or the ureter. These non-intestinal colics when encountered in their textbook form can be recognized by the first-year student; they may, however, give rise to central abdominal pain, visceral in type but quite unlocalized, and profuse and persistent vomiting, so that even an experienced clinician may fail to appreciate their origin.

The unmistakable features of intestinal obstruction are that the vomiting persists and increases and that constipation is absolute, even to the passage of flatus. In each case there is a loophole for error. The vomiting of an obstruction is first reflex in origin, and later the result of mechanical backflow. This overflow vomiting may not appear for some hours, or even days, if nothing is put into the canal above the obstruction, and if the element of infection (that is, strangulation) is absent or walled off. Constipation is absolute only as regards material passing the site of the obstruction. Any faecal matter, and it may be large in amount, which lies below the obstructed site is voided either spontaneously or in response to an enema, and even a second but smaller evacuation may follow.

Here we are dealing with a condition which is uniformly fatal without operation and in which the operative mortality varies hardly at all with the surgeon's skill, but rather with the condition of the patient and of the intestine above the obstruction at the time of operation. Such cases, therefore, should always be admitted where the pulse rate and appearance of the patient can be under constant observation, the vomit inspected, and enemas given and repeated as required. Three rules have impressed themselves upon me as the result of long and sometimes unfortunate experience. First, always give the patient plenty to drink—water or some harmless fluid such as lemonade or weak tea: if he is going to vomit the sooner we know the better. Secondly, never decide against obstruction on the result of the first enema; give a second two hours later, and if necessary a third. If every single thing about the progress of the case—the cessation of vomiting and pain, the absence of distension, a feeling of improvement in the patient, and a dropping pulse rate—denies intestinal obstruction, but no faecal matter or flatus is passed per rectum, insist upon operation and stake your reputation upon your decision. Thirdly, if the pulse rate is steadily rising always advise laparotomy, though other features of the case suggest the safety of delay.

This subject is so important that I would cite three personal cases, in one of which I was wrong and unsuccessful, in one wrong but successful, and in the third one right. I have not chosen them as a series to illustrate the increasing wisdom brought by experience, for they came to me in the reverse order. I saw the first case, which is the least creditable to me, a year ago, and the third fifteen years ago.

Case I

I was asked to see a lady of 65 years who had been vomiting almost continuously for eight days. During the whole of this period she had no abdominal pain, no tenderness, and no distension. Her bowels were opened the first day of the attack, but she had passed nothing since, in spite of repeated enemas. She was seen in consultation on the fifth day of the attack by a physician, who was unable to find any abnormal physical sign in her abdomen, but discovered that she had a blood urea of 250 mg. per 100 c.cm. During the whole of the sixth day she did not vomit at all, and a tube passed into her stomach showed it to be empty. On the seventh day she started to vomit again, and her blood urea was now 350 mg. per 100 c.cm. I saw her the next day.

Though the physician who called me, one of the wisest men in medicine to-day, was in doubt about the diagnosis, I was prepared, with the history of persistent vomiting and negative enemas, to find a case of intestinal obstruction. When, however, I saw the lady who had vomited all these days looking well and feeling free from distress, when I could find no trace of distension or muscle guarding or of tenderness on abdominal or rectal examination, when I found the pulse and temperature normal and the vomited material quite inoffensive, and when I remembered that during this period she had ceased entirely to vomit for twenty-four hours, my conviction was shaken. I suggested that the vomiting might be either toxic in origin or due to a nearly complete pyloric stenosis, and that in any case no operation should be considered till the blood urea had been brought to a lower figure. I therefore instituted a continuous drip saline infusion into a vein in the leg. Two days later I was forced to operate by a rising pulse. I found a large gall-stone impacted in the ileum two inches above its lower end, and causing gangrene of the gut throughout its circumference. I removed the stone, resected the gangrenous portion of intestine, and drained the upper loop. The patient died three days later.

I quote this case to illustrate the dangers of too much erudition, of too little common sense. The astonishingly high blood urea was the Lorelei of science, singing the same chant as a series of surgical uraemias following pyloric stenosis which it had been my lot to encounter and treat successfully during the past year, and lulling my surgical conscience with dreams of toxic vomiting. A surgeon who can possibly allow a patient who has passed no faeces or flatus for several days in spite of repeated enemas to remain unoperated upon deserves a jolt of this nature to put him back on his true course.

Case II

I reported my second case in the *Lancet* in 1921. A young man of 23 years was admitted to Guy's with a typical history of acute intestinal obstruction of three days' duration. The illness started with a sudden agonizing pain following three days of vague abdominal discomfort. From this time onwards he had been in continual but not severe pain. He had vomited such fluids as he had taken and had passed nothing per rectum. Inquiry showed that he had vomited after food only and that the vomit had never been offensive.

He looked well and comfortable, with a clear complexion and a clean, moist tongue. His temperature was 100°, his pulse 88. The abdomen was slightly full, but moved well, and there were no distended coils or visible peristalsis; vague tenderness was found over a wide area to the left of the umbilicus. On rectal examination masses of scybala were felt, but there was no tenderness whatsoever and no ballooning. He was given an enema, and passed a large formed motion, with flatus. The pain was relieved and he went to sleep. Next morning he awoke feeling very well, and his pulse was now 68 and his temperature 98.4°. He had no pain, and only slight tenderness. He remained like this for the next two days, taking fluids without vomiting, with a normal temperature and a pulse under 80. His abdomen was, however, more distended, and though he felt comfortable he did not look so well. Operation was therefore advised.

I found moderately distended coils of small intestine and a little free blood-stained fluid in the abdomen. On passing my hand downwards I felt a band snap at the pelvic brim, and came upon a mass in the pelvis, which I brought into the wound. It consisted of several coils of intestine matted together and surrounding a loop of lower ileum about five inches long, which was gangrenous and greenish-yellow in colour. I resected twelve inches of bowel and performed a lateral anastomosis. Recovery was uneventful, and the patient was discharged well a month later.

I would quote what I wrote as a surgical registrar.

"In this case one had to decide whether to trust one's eyes or one's ears to explore the abdomen on the history alone in face of the clinical findings, or to trust the latter and mistrust the history. I wrongly chose the latter course. Three things influenced me in this decision: first, that I did not know the patient, and had no confirmation of his story from a medical man; secondly, that the passage of flatus as well as faeces is very unusual in any obstruction other than that of Richter's hernia; thirdly, that the man was a plumber, and since he had very good teeth he might be suffering from lead colic without showing the characteristic blue line on the gums."

To this comment I would add to-day that, where the history is in any way suggestive of intestinal obstruction, the negative evidence of one enema alone should not be trusted; a second should always be given.

Case III

The third case was an old lady of 80 years who was admitted to Guy's one afternoon with a history of colicky pain referred to the umbilicus, and vomiting, both of which had started during the morning. Questioned, she thought that an orange she had eaten the previous night had disagreed with her. Her tongue was clean, her abdomen not distended and not tender, her pulse 72, her appearance that of a feeble individual and a poor operative risk, but in no way toxic. She vomited some bile-stained but odourless fluid. An enema produced a large constipated motion. She was given tea, and put on an hourly pulse chart. She continued to vomit still inoffensive material. A second enema four hours later was returned with a fair amount of faecal material. At 10 p.m. her appearance and that of her abdomen was unchanged, but she was still vomiting and her pulse had risen to 90. Operation was therefore advised. A large mass was felt in the lumen of the lower ileum, squeezed up into healthy bowel, and removed. It proved to be half of a small orange, swallowed unchewed. The hemispherical shape of the obstructing body had allowed intestinal material to pass along its flat side.

Intestinal obstruction in a baby usually means intussusception. The great majority of these cases are, most fortunately, unmistakable. Difficulty arises when the baby looks too ill for the length of the history, when the characteristic intermissions appear to be absent, and when no lump can be felt. Here the rule that we must act upon the most dangerous of possible alternatives impels us to admit every case immediately. The possible causes of a similar symptom-complex are Henoch's purpura and acute intestinal toxaemia. With regard to the first, a submucous haemorrhage unaccompanied by a subcutaneous one must be so rare that we have no right to let its possibility influence our judgement at all. The second is unlikely without diarrhoea, and should be considered only if the rectal contents are faecal or tinged with bile. When any doubt remains it is wise to take the baby to the theatre, and there, prepared immediately to operate, to palpate the abdomen under anaesthesia.

But the "acute abdomen" is not the only example of the doubtful abdomen; there are many less urgent, where the surgeon, after considering all available evidence, is called upon to decide a line of action rather than to attach a label. A line of action is indeed necessary before even a label can be provided for the doubtful abdomen, the type of case in which after considering carefully the

history and the facts we have obtained by our clinical examination we are still uncertain whether there is organic disease, and, if so, whether it is a single lesion or a combination of several.

The Doubtful Abdomen

A not uncommon illustration of such a difficulty is when we suspect gall-stones, duodenal ulcer, and a chronic appendix, one, two, or all three of them. A complete investigation is a lengthy, and for a private patient an expensive business. What we really need to know is whether operation will be required; if so, all subsidiary doubts can be left to be settled by this one certain method. We therefore concentrate upon the gall-bladder, for, apart from the small body of qualified confidence men who "dissolve" or "expel" gall-stones, there is a general agreement among doctors that the treatment of stones, once they are giving serious trouble, is operative. Should we start with a barium meal and find an ulcer we must still investigate the gall-bladder and appendix. I say this because I believe, as I am sure do most of you, that the operative treatment of duodenal ulcer, as apart from that of its rarer complications, is as unsound, and should be as dead as, the medical treatment of rebellious gall-stones. If we find gall-stones we operate, look at the stomach and duodenum, and remove the appendix, healthy or unhealthy.

But in the uncertain chronic abdomen, as in the acute one, it is the appendix that comes first to mind. I do not wish to be led astray from my main thesis into an oration on the chronic appendix, a disease responsible more than any other for lazy diagnosis, slipshod pathology, and commercial surgery. The only advice I can give my registrars is never to admit its existence to students or themselves until they are 35, and never to take a fee for removing one until they are 40. Being well on the safe side of this line myself I am certain that there is such an entity. I am not considering any case that might be classed as intermittent appendicitis. Where there has been a reasonably clear history of an acute attack in the past, where the attacks are definitely intermittent, lasting about a week and separated by intervals of normal health, where the symptoms are gastric, and appendicular tenderness is first found by the physician and not by the patient, the diagnosis is reasonably clear. But there is also a condition in which attacks of mild pain, limited to the right iliac fossa, and constantly recurring, without pyrexia or vomiting, are due to the appendix. Further, the appendix may, on removal, be indistinguishable from normal, and the diagnosis is confirmed by the therapeutic test alone. After removal of such a harmless-looking tube the patients not only lose their symptoms, but they enter a new phase of health, which shows them for the first time that they were not well before. It is a considerable experience of cases of this type occurring among colleagues and personal medical friends, where they and I have discussed all possibilities and decided upon appendicectomy with hope rather than conviction, where the improvement has astounded me and delighted them, that has forced my unwilling acceptance of this dreadfully vague lesion. For I still cannot claim any certain method of distinguishing the true from the false chronic appendix.

Let us presume that we have very carefully excluded all those conditions, failure to recognize which has brought the operation of limited laparotomy into disrepute, partial obstruction of the right ureter from stone or otherwise, inflammatory changes in the right tube or ovary, caecal distension or prolapse, and that the radiologist's examination of the appendix itself has disclosed no abnormality. The patient still complains of pain and we still find tenderness at or below McBurney's point in an area no larger than a penny. Two questions will pass through our minds: "What harm will I do if this is a chronic appendix, and I leave it alone?" and "What harm will I do if I remove a perfectly normal appendix?" To the first we must answer "No great harm." An appendix of this sort is very unlikely to flare up in an acute attack. On the other hand the symptoms will certainly persist, operation will be required, and until it is done ill-health will continue. To the second we must answer "No harm, if I operate through a planned and limited incision, unless the patient is a potential neurotic; if on the other hand I advise laparotomy, I undertake an operation with a slight but definite mortality, and other possible lesser sequelae in the way of abdominal insufficiency and adhesions." To sum up: in such a case we must take the greatest care to exclude the potential neurotic; she will certainly have her appendix removed, but, however rich she may be, we should let someone else do it and be plagued by her ever afterwards. With a sensible patient we advise a limited appendicectomy, but need not urge it unless he is going out of reach of civilization. Laparotomy is not to be encouraged.

Indications for Laparotomy

This brings me to what is one of the most important matters of policy that a surgeon has to decide: What are the indications, if any, for laparotomy? He will have to consider a purely exploratory operation for a number of different lesions, and first in these doubtful appendix cases. I have just advised you against it. In the first edition of *Recent Advances in Surgery* I stated, with the dogmatism that is rightly expected from a man ten years younger than I am to-day: "Chronic appendicitis is only diagnosed after careful investigation and the weighing of every alternative possibility, and it is only treated by laparotomy." But what will a laparotomy tell us in the type of case we are discussing, one we have investigated thoroughly and pondered at leisure? Through a reasonable incision we can see the organs in the right lower quadrant of the abdomen, all the small intestine and its mesentery, and the pelvic organs. We can feel the whole abdominal cavity, and by this means can immediately recognize stones in the gall-bladder or kidneys, cancer of the stomach or large intestine, enlargement of the liver or spleen, and gastric or duodenal ulcer. But all these lesions are unlikely in the case we are discussing, and should have been excluded by our preliminary investigation. We cannot recognize non-destructive lesions by touch alone—cholecystitis, gastritis, duodenitis, colitis—nor should we attack them surgically if we could. A really large opening will allow us to see everything; but, again referring to this particular class of case, it is very unlikely that by inspection we can establish something that our biochemical and radiological colleagues have been unable to disclose. I am now firmly convinced that the surgical treatment for a chronic appendix is operation through a very limited gridiron incision, which will allow removal of the appendix and one-finger palpation of the tubes and ovaries and no more. Such an operation has no mortality and no sequelae, and involves hardly any loss of time; it is justified, therefore, even as a means of "diagnosis by elimination." Though limited, it will tell us all that a wide laparotomy is likely to do, without its risks.

In the surgery of gastric or duodenal ulcer laparotomy has no place. If the diagnosis is not clear after a barium meal and test meal, then those complications which alone can justify surgery have not yet arisen. Organic stenosis,

repeated severe haemorrhage, extension to a size that prohibits permanent healing, early malignant change, can all be established with greater certainty by observation, radiography, and functional tests than by inspection and palpation. Operation is undertaken for treatment and not for diagnosis. Still less is the surgeon justified in advising laparotomy for symptoms suggesting gall-bladder trouble, for inspection and palpation can very rarely demonstrate disease which clinical investigation and *x*-ray have failed to disclose. Lipoid deposits on the mucous membrane and obscure neuro-muscular derangements of the mechanism of emptying may give rise to recurring attacks of severe pain, yet leave the shape, density, and concentrating power of the gall-bladder, those characteristics which can be examined radiologically, unchanged, and its appearance and texture apparently normal. We must decide upon the history and results of our investigation, which will often include a prolonged period of observation and a therapeutic trial of "medical drainage," whether the symptoms arise in the gall-bladder. If we have so decided we operate to remove the gall-bladder, and no apparent normality of its surface or texture can affect that decision.

Laparotomy and Carcinoma

When the possibility of carcinoma lies among the alternatives we are turning over in our minds the question "Am I likely to do more harm by delay or by laparotomy?" assumes a very different complexion. We are often told that the most sinister fact about cancer is its complete silence during the early stages, giving the victim no indication that anything is amiss till the disease is far advanced. We are frequently assured that neoplasms, at any rate when they affect the stomach and colon, can be recognized by clinical, biochemical, and radiological investigation provided the patient has symptoms and presents himself for examination. Yet it is a painful fact that the ordinary working surgeon repeatedly meets cases which have been under the care of most eminent and conscientious physicians for months as suspects, who have been repeatedly investigated and repeatedly *x*-rayed with negative results, who finally are somewhat grudgingly advised a laparotomy, which discloses a growth about two months too late for resection. Such, at any rate, has been my experience eight times this year. It is an aphorism in yacht racing that the man who does not cross the line before the gun one race in seven is never going to get a good start. In cancer surgery the man who does not do one unnecessary laparotomy in seven is going to lose many lives through timidity. When we find a man over 50 who has hitherto been healthy starting to lose weight and strength progressively, even though he has no pain, indigestion, or constipation, even though every test is negative, we must still feel that carcinoma is only too likely. I would always accept the positive warning of a penny weighing machine in preference to the negative assurance of a ten-guinea expert. If the weighing machine persists in this opinion after six weeks, during which the patient has been relieved of work and worries, kept strictly at rest, and carefully dieted, we must advise laparotomy and urge it with all the persuasive powers at our command. The evidence of eye and hand is the only final court of appeal. A sensible patient will readily fall in with this advice when it is put to him, and if the result is negative he will be so delighted to receive a clean bill of health that he will think nothing of his suffering or even of our fee.

Exploratory laparotomy, then, is a course which we will never advise lightheartedly, and only when we are certain that it is a lesser evil than delay. To-day the mortality of such an operation has been practically abolished, thanks to improvements in anaesthesia and pre-operative and post-operative treatment, and adhesions to the scar have been rendered less likely by methods of suture which leave no raw surface on its abdominal aspect. Even so the risk cannot be less than one in five hundred or the incidence of adhesions less than one in fifty.

I have thus far chosen the illustrations to my thesis, the lamentably simple one that in surgery decision is often the better part of diagnosis, from the abdomen. This has been almost inevitable because so many of the structures in this dark cavity are liable to catastrophes that progress with startling rapidity from their silent onset to their fatal termination; because their topography is not constant, as in the rest of the body, but to a certain extent fluid; because their troubles are only vaguely recognized by their owner, and then referred by him to their embryological rather than their present site; and because they are entirely hidden from our eyes and very effectively screened from our hands. But exactly the same need for precocious decision is constantly arising in other parts of the body.

Subacute Arthritis of Childhood

A clinical puzzle that we encounter all too frequently is the subacute arthritis of childhood, the joint that may possibly be tuberculous. The onset of tuberculous arthritis is, as you all know, remarkably quiet. Pain, beloved of the textbook, is rarely a prominent and never an early symptom; it appears only when destruction of the joint is already far advanced. So symptomless is the onset, bringing nothing more obvious even to a solicitous parent than a disinclination to play, that we rarely see an early case. The children are brought to us with marked wasting, limitation of movement, and destruction of bone that is visible in the *x*-ray picture and has often produced a mensurable deformity. When the diagnosis of tuberculosis can be made with certainty the time for cure is long since past; the only tuberculous joints that are cured—that is, restored to complete normality—are those in which the diagnosis is uncertain. What, then, is to be our attitude? If on the one hand we watch every doubtful case till it is no longer doubtful we will make many unnecessary cripples; if on the other hand we decide to regard every doubtful case as tuberculous we must enforce a minimum period of two years' immobilization, protection, or restricted activity—a most drastic treatment for a case that is not tuberculous. Let me give a definite example from my own recent experience.

I was asked to see a little boy of 5 because he had been limping slightly for about six weeks. I found a fair-haired, rosy-cheeked youngster who looked the picture of health. At first he would not limp; but as he played about the room I noticed that he tended to spare the right leg as he pranced around. I will not give the results of my examination in detail, but will tell you that the first and most important of the methods at our disposal, inspection, gave me the only indication of abnormality that I was able to obtain. I could see a little thickening of the tissues in the right knee-joint, apparent only in a blurring of the outline of the patella and patellar tendon when compared with the other side. When I felt the knees I was unable to appreciate any difference, to detect any fluid or synovial thickening. The measurement of both thighs and calves was equal, the movements of the hips, knees, and ankles the same. An *x*-ray photograph taken next day showed no abnormality, no difference between the bones of the two limbs. The child had had no previous ailments of any kind; he lived in one of London's newest and healthiest suburbs and spent most of the day in a large garden; he slept and ate well. On the other hand one parent had a strong tuberculous history.

The diagnosis in such a case would be no more than a matter of *amour propre* for the doctor did it not imply decisions upon treatment affecting in any case the next year or two of the child's life, and possibly his whole future. Children at the age of 5 are very prone to a non-specific arthritis, whose origin and causative organism is unknown. One of my colleagues held sufficiently strong views on the first question to class this group as "tonsil joints," while many would attribute them to a mild streptococcal infection. To immobilize a tonsil joint for two years would be a calamity only exceeded by that of allowing a tuberculous one to run about till a definite bone focus had become apparent. The one certain diagnostic test, arthrotomy and removal of a piece of synovial membrane for section, is fraught with far too many dangers should the condition be tuberculous to allow it to be considered.

The only decision possible to us is that we must regard every chronic or subacute arthritis appearing in a child between the ages of 3 and 12 as tuberculous until we have proved the contrary, and we can prove this only by a period of diagnostic rest. Complete immobilization, by splint or plaster-of-Paris, has no distinctive value, for it will cause any inflamed joint, tuberculous or otherwise, to settle down, and when it has settled we are in an even worse position, still doubtful whether we can risk activity with the chance of reactivating a tuberculous process, and with no physical signs to guide us or to support our cautious attitude before the parent. Mere rest in bed, on the other hand, will clear up a "tonsil joint" in six to eight weeks, but will do no more than keep a tuberculous one stationary. If at the end of this period we still find the joint swollen, with limited movements, we can proceed to a period of rigorous immobilization with the certain knowledge that it is necessary and the comforting reassurance that it is in time.

Indefinite Mammary Trouble

Yet another instance where diagnosis is a matter of faith but decision of vital importance is provided by the indefinite troubles of the breast in women of over 40. Here, as in similar troubles in the abdomen of men a decade older, the first question to be faced and answered is that of possible malignancy. But whereas in the abdomen we can, when doubt remains after prolonged consideration, decide to look and see, leaving things as before if cancer is excluded, in the breast we can only remove and see, and by this I mean remove the whole breast. When a woman has passed the age of 40 she has passed the time when any local operation on the breast is safe. I say this because one lesson which we can apply to our daily task appears to emerge from the large amount of pathological research which has been done within the last decade; that changes which occur in the female breast after the peak of the child-bearing period, be they degenerative or malignant, are prone to occur simultaneously in many parts of it, and any such change sufficiently advanced to be appreciated by our senses is not an isolated lesion but a sample of what the rest of the breast holds in a less obvious form. These breasts often contain lumps which have no single physical sign suggesting cancer. The commonest form for the lumps to take is that of irregular nodules of rubbery consistency scattered throughout the breast substance, linked up to each other by intervening strands and impalpable with the flat of the hand. For these lumps I should prefer to retain the name of chronic mastitis till pathologists have ceased to differ among themselves about the aetiology and pathological nature of the different types and have agreed to hand out a classification which we may accept and teach our students. Chronic mastitis does not call for surgery, or even for alarm, but merely for caution. I do not suggest that any woman with such a breast can in fairness be advised to forget about it; she can be told not to worry about it, but requested in a reassuring way to come for an overhaul every few months. Chronic mastitis is so common that its relation to cancer can never be assessed numerically; but there is no doubt that a breast in which the epithelial structures are pressed upon, their nutrition impaired, and their lymphatic drainage obstructed by an increase in the interstitial fibrous tissue will be more liable than a normal one to develop malignant changes. Patients, however, rarely ask for advice about such a breast, but come because a single lump has recently attracted their attention, is growing, or has become painful. If such a lump has any single character of malignancy we must neglect all signs pointing the other way and treat it as cancer. By my qualifying introduction, however, I am suggesting that it differs from all other lumps we may find in the breast only in being palpable with the flat of the hand; it is not hard, nor is the shape, contour, or mobility of the breast in any way different from that of its fellow. Such a lump is almost certainly a cyst. The patient wants us to remove it. To agree will be easier for her and for ourselves, for it relieves her fears and establishes our position as men of decision. You must all be familiar with the patter of the lump remover.

"I feel certain, my dear Mrs. Smith, that there is no need to worry in your case, but I know that your anxiety comes from a knowledge that many lumps in the breast of women of your age, harmless at first, later undergo changes of the most serious nature. I would far rather see a patient sufficiently alive to these possibilities to be unnecessarily afraid than one who remains complacent till the chances of cure are long past. But while I feel convinced that this lump of yours is innocent in nature you will realize that that is no more than my opinion, for what it is worth, and that the only final answer is that given by the microscope. I should therefore strongly advise you to submit immediately to a small operation for its removal, an operation without risk, that can, if you wish it, be done under local anaesthesia. In this way alone will it be possible to get an unequivocal verdict and to set your mind, as well as my own, at rest."

The summing-up is excellent, the judgement wretched. The lump we feel is one of a countless host scattered throughout the breast, differing from the others only in being distended to a greater extent with fluid, but not therefore any more or less likely to show early malignant changes. To remove it is neither treatment nor diagnosis, nor is it even decision. It is akin to the policy of the president of a South American Republic who would seek to scotch a revolution by shooting the fattest of his opponents. The lump is either precancerous or it is not precancerous. If it is, the whole breast should be removed; if it is not, its excision is not only unnecessary but gives a false sense of security which will often cause the subsequent appearance of malignant change to be ignored till too late. A similar problem is presented to us by discharge, serous or blood-stained, from the nipple. Such a discharge may be due to chronic mastitis, to duct papilloma, or to duct carcinoma. If there is a lump in the lobe drained by the discharging duct we cannot say that it is papillomatous or malignant till the signs of wider involvement appear; if there is no lump any diagnosis is no more than a guess. But discharge from a duct means irritation in an epithelial-lined tube, irritation leads to proliferation, and proliferation in time assumes the characters of unrestrained growth. Discharge from the nipple calls for decision rather than diagnosis; and that decision must be between further observation and excision of the whole breast and its fascia.

Two Main Considerations

I realize that my views about the doubtful breast are drastic, but if they are right they must be accepted. Two considerations may make their acceptance easier. First, when we come to deal with the treatment of cancer we discuss various alternatives—radical surgery of different types, irradiation in one of its many forms, or a combination of the two methods—in the attempt to find that plan which carries the greatest chance of cure. But we know that in the long run our successes will seldom be more than 60 per cent., and we can never be certain that we shall succeed with any particular patient, however localized the disease may appear to be. With precancerous conditions, on the other hand, we can, by a much more limited removal, guarantee success in 100 per cent. carried to any number of decimals. Returning to my simile of the revolution—and no comparison could better fit cancer where one group of cells combines to attack the corporate body, with the probability that both whole and part will be involved in the eventual ruin—we may compare the usual method employed to deal with such uprisings—to attack the insurgents after revolution has broken out with the much more scientific prophylactic method evolved in Russia, that of exterminating (liquidating is the correct political euphemism) the whole social stratum in which discontent might arise before the first hint of trouble. This method, after all, is the only safe one; it has meant the slaughter in cold blood of some three million innocent people, but it has made Russia safe for communism.

The second consideration is that the operation which is adequate to deal with a precancerous breast is limited, sightly, and far less severe and dangerous than that which will be required when cancer has appeared. It involves the removal of all breast tissue, of the pectoralis fascia in which the main lymphatic channels lie, and preferably of the anterior axillary glands in addition, but not of the muscles or of any more skin than is necessary to fashion flaps that will clothe the chest without redundancy when the breast has been removed. It can be accomplished through a low curved incision placed horizontally, and will leave a scar that is invisible, even in the best night clubs or on the beach at Juan les Pins. We are, however, treating the patient rather than the disease, and we may be forced to local removal of a lump if we realize that she will otherwise fly to some quack remedy. But the ordinary sensible woman will accept the reasonableness of our advice and be content to report for examination at regular intervals, content in the knowledge that we shall recommend more drastic measures only when they are necessary. Should we see any danger sign, such as unilateral alteration in the shape of the breast, or of the orientation or level of the nipple, we must give this advice even though the lump itself remains unchanged.

Conclusion

I have tried to suggest a point of view rather than to lay down rules, as indeed it would be most unfitting for me to do. To us our profession is more than a trade: it is our life, an expression of our humanity. That humanity has three aspects—science, art, religion; we know, we feel, we believe. But the third, which is perhaps the most important of all, which underlies the others, is least often acknowledged. Many writers speak of the science and art of medicine, but none since Sir Thomas Browne has written of the religion of medicine. The three are necessary to a sane and balanced whole; for just as science and religion without art produce the fanatic, art and religion without science the mystic, so science and art unleavened by faith produce the virtuoso, the technical expert. The faith of medicine is expressed in the Hippocratic oath. "The course I adopt shall be for the benefit of my patients, according to my ability and judgement." The welfare of the patient is the end we seek in surgical decision, which thus becomes the surgeon's religion, a faith that must sometimes repudiate science and transcend diagnosis.

CHRONIC MENINGITIS IN WEIL'S DISEASE

BY

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This note describes a case of Weil's disease associated with chronic meningitis, and is of interest not only because the first evidence of meningitis was observed four months from the beginning of the disease, but also because leptospira were recovered from the cerebro-spinal fluid six months and from the urine of the patient eight months after the onset of the illness. The patient was a farm labourer aged 35 years, and his illness is summarized in the following notes.

History of Illness

The patient lived in Ireland until a year ago, when he came to England to work on a farm near Lancaster; his work does not appear to have exposed him in any particular way to the risk of a leptospiral infection, but there were many rats about the farm. Until December, 1935, he had always enjoyed good health.

He was admitted to a hospital in Lancaster on December 16th, 1935, suffering from a febrile illness which had begun between one and two weeks previously. He was jaundiced, and *Leptospira icterohaemorrhagiae* were found in the urine. Within a week of admission the temperature fell to normal, but there was a further slight rise about the tenth and eleventh days, after which the patient's condition improved and the jaundice gradually disappeared. The attack was apparently typical Weil's disease, but recovery was not complete, and early in January there was a slight irregular fever. He was given an intravenous injection of 0.1 gramme of sodium potassium bismuth tartrate on January 25th, 27th, and 31st, but as this was followed by a severe fever, with a temperature of 103° F. on February 4th, and later by an itching scaly eruption all over the face, trunk, and limbs, no further injections were given. The rash slowly disappeared, but he had a moderately severe and irregular fever until the beginning of March. His temperature then became normal, and he improved sufficiently to be allowed out of bed although he still remained in hospital. Towards the end of March the fever recurred, and early in April, just over four months after the date of his admission, he began to suffer from severe headaches. The headaches were at first relieved by simple remedies and later by lumbar puncture, but finally such measures produced only slight and transient relief. The patient's vision then began to fail, and the temperature was persistently swinging each day between 99° and 101° F., the headache became intense, and the general condition was obviously becoming very serious. The cerebro-spinal fluid was examined on May 14th, and was found to be under increased pressure and to contain an excess of cells; the Lange curve was 0001221000 and the Kahn reaction negative.

The cause of the meningitic reaction was not determined, and as the patient's condition was steadily deteriorating he was transferred to the Liverpool Royal Infirmary, where he was first seen by me on May 20th.

General Examination

He was lying curled up on his left side, with the bedclothes drawn over his head. There was no jaundice, but he was pale, with flushed cheeks, and extremely wasted and weak. Cerebration was slow.

Cardiovascular System.—Heart: rhythm regular, 80 per minute; apex beat in fifth space within nipple line; heart sounds faint, with soft systolic bruit at all areas. Blood pressure 120/78 mm. of Hg. No evidence of haemorrhages into skin or mucous membranes, but the left fundus oculi showed generalized oedema of the retina, with haemorrhages near the disk; the right fundus was not seen (*vide infra*).

Respiratory System.—Respirations, 18 per minute; chest movements symmetrical; percussion normal, fremitus and resonance normal, breath sounds normal, and no adventitious sounds. There was a little cough, but the scanty sputum showed nothing of significance.

Alimentary System.—Some redness of the fauces, but otherwise nothing of moment.

Genito-urinary System.—Apparently normal, excepting for slight phimosis. Urine: clear, acid, no albumin, no sugar, centrifuged deposit consisted of amorphous urates with very occasional leucocytes; no organisms seen in ordinary examination or by dark-ground illumination.

Central Nervous System.—Cerebration depressed; severe persistent headache; rigidity of neck. Generalized weakness, but no obvious objective motor or sensory disturbances, and no evidence of any cranial nerve lesion. (The vision was poor, but there was gross damage to the media of the right eye, and definite oedema of the left retina. The right pupil was fixed by adhesions, and therefore reacted poorly to light. (*Vide infra.*) Knee-jerks feeble, but present and symmetrical; plantar reflexes flexor.

The liver was not apparently enlarged, but the spleen was palpable one and a half inches below the costal margin, and there were small palpable glands in the neck, axillae, and groins.

These findings suggested a generalized infection with meningitic involvement, and the following further examinations were therefore carried out.

Cerebro-spinal Fluid.—Appearance: very faintly opalescent; fibrinous clot on standing. Pressure: 250 to 280 mm. of water. Protein: moderate increase. Chlorides: 613 mg. per 100 c.cm. Sugar: normal. Non-protein nitrogen: 15 mg. per 100 c.cm. Cells: 173 per c.mm. (60 per cent. polymorphs, 30 per cent. lymphocytes, and 10 per cent. large degenerated cells). Wassermann reaction: negative in all dilutions. Cultures remained sterile at 37° C. for three days.

Blood.—Erythrocytes: 2,400,000 per c.mm. Halometer reading: 7.4μ. Haemoglobin: 45 per cent. Colour index: 0.9. Leucocytes: 7,500 per c.mm. Films: erythrocytes normal excepting for slight basophilia and polychromasia. Leucocytes normal in appearance and relative proportions. No parasites seen. Van den Bergh reaction: direct negative, indirect less than 0.5 units. Non-protein nitrogen: 40 mg. per 100 c.cm. Agglutination: completely negative with *B. typhosus* O and H, *B. paratyphosus* A and B, and with *B. melitensis* and *B. abortus*. Cultures: remained sterile at 37° C. for three days. Wassermann reaction negative.

Urine obtained by catheter remained sterile in culture at 37° C. for two days, and the faeces were chemically and bacteriologically normal.

The heart and lungs appeared normal on *x*-ray examination, and there was no *x*-ray evidence of any abnormality in the skull.

Mr. McKie Reid, the ophthalmic surgeon, examined the eyes, and reported: "Right eye: pupil irregularly bound down with exudates of an old iritis; organizing vitreous haemorrhage present; fundus details not seen. Left eye: pupil reacts normally; media clear; slight generalized juxtapapillary oedema of retina; striate haemorrhages near disk along superior temporal vein."

Diagnosis

When the results of the various examinations were obtained it was thought that the most probable diagnosis was that of tuberculous meningitis, although the duration of the meningitis and the high percentage of polymorphonuclear cells in the cerebro-spinal fluid two months from the onset gave rise to doubts as to the correctness of this view. The possibility of the meningitic infection being due to *Leptospira icterohaemorrhagiae* was discussed, but without conviction, because although meningitis is a well-known complication of the acute stage of Weil's disease so far as was known it had never been described as occurring so long after the onset of the disease, while, furthermore, the total duration of a leptospiral infection in man was considered to be very much shorter than the duration of this patient's illness. However, in view of the doubt about the diagnosis, and the failure to demonstrate any organisms in the cerebro-spinal fluid, a second lumbar puncture was performed on May 25th. The fluid obtained on this occasion was immediately centrifuged at high speed and a sample of the deposit carefully examined microscopically, both in the ordinary way and by dark-ground illumination, but no organisms were seen.

The greater part of the deposit, suspended in a few cubic centimetres of the supernatant fluid, was then inoculated into two healthy guinea-pigs, which were isolated and carefully observed. On June 4th one of the guinea-pigs was obviously ill, and *L. icterohaemorrhagiae* were discovered in its blood. This animal died on the following day, and at post-mortem examination presented signs of Weil's disease, typical of a guinea-pig inoculated directly from man.

The tissues were jaundiced, and showed small scattered haemorrhages. Macroscopically the liver was not grossly abnormal, but microscopically it presented areas of fatty degeneration and necrosis. Haemorrhages were found in the kidneys, and the urine was rich in leptospira. The adrenals were enormously enlarged and haemorrhagic. The spleen and lymphatic glands were slightly enlarged, and the lungs showed irregular haemorrhagic areas. Leptospira were demonstrated in the organs by silver impregnation, and I am indebted to Dr. A. J. Walker for the preparation of these sections.

Before the death of this animal its blood was inoculated into further guinea-pigs and into medium consisting of five parts physiological saline and one part rabbit serum, and heated to 56° C. for thirty minutes. The strain has since been maintained by culture in this medium at 30° C., and for a time it was also maintained by passage through guinea-pigs. The guinea-pig of the sixth passage, however, became spontaneously cured, and further animals inoculated with this guinea-pig's blood, while it still showed leptospira, failed to become infected. The strain appeared, therefore, to be only moderately virulent for guinea-pigs and, in fact, the second of the two animals inoculated directly from the patient's cerebro-spinal fluid showed no signs of infection during an observation period of more than six weeks.

Further Investigations

In view of the results obtained above, the patient's cerebro-spinal fluid, blood, and urine were further examined on June 6th. In no instance were leptospira found directly by the microscope, and animals and cultures inoculated from the cerebro-spinal fluid and blood remained negative over an observation period of several weeks. Two guinea-pigs, however, inoculated with the deposit obtained by high-speed centrifugation of the patient's urine became infected and died of typical Weil's disease ten days later.

Samples of the patient's cerebro-spinal fluid and blood serum were then sent to Major H. C. Brown and Dr.

J. C. Broom, who very kindly examined the serological reaction of these fluids with various strains of leptospira possessed by them. Their preliminary report stated that both the patient's serum and cerebro-spinal fluid were completely negative by agglutination test with their following strains of leptospira, "Jackson," *canicola*, "dog IX," and by adhesion test with their strain "Rachmat." A further supply of serum was sent to them, together with subinoculated guinea-pigs and cultures obtained from the animal infected directly from the patient's cerebro-spinal fluid. The results of their subsequent tests were as follows:

Agglutination Tests

Serum	Strain	Agglutination with Serum in Titre of					
		1 in 10	1 in 30	1 in 100	1 in 300	1 in 1,000	1 in 3,000
Patient's ...	Patient's	Trace	0	0	0	0	0
„ ...	"Jackson"	0	0	0	0	0	0
Known positive	Patient's	Trace	+	+	+	+	Trace
„ „	"Jackson"	0	+	+	+	+	Trace

Adhesion Tests

Serum	Strain	Adhesion with Serum in Titre of 1 in 20
Patient's	Patient's	Weakly +
„	"Jackson"	0
Known positive ...	Patient's	+
„ „ ...	"Jackson"	+

Professor Schüffner, who was in London at the time, very kindly interested himself in the matter, and on his return to Amsterdam tested the patient's serum against various strains of leptospira, with the following agglutination results:

Jackson, English strain	+ 1:10
Schermerhorn, Dutch strain	+ 1:30
Wijnberg, Dutch strain	0
Schermerhorn, formalin	0
Wijnberg, formalin	0
Weil Berlijn, German strain	0
Swart van Tienen, Indian strain	0
Rachmat, Indian strain	0
Salinem, Indian strain	0
Hebdomadis B, Japanese strain	0
Moskou, Russian strain of mud fever	0
Hond Utrecht IV, Dutch dog strain	0
Allarie, Dutch dog strain, formalinized	0
Hond HC, Indian dog strain	0
Waz, water spirochaete	0

These results show that, while the patient's leptospira were agglutinated by Major Brown's known immune serum, the patient's own serum had only a feeble action against his own leptospira, and, apart from slight action against the "Jackson" and "Schermerhorn" strains, no action against a number of strains of leptospira. The practically complete absence of specific agglutinins from the patient's serum was remarkable in view of the long duration of the disease, and it seems not unreasonable to assume that the chronicity of the illness must have been associated with an infecting strain of low virulence and with a feeble immune-body response by the host.

Treatment

Although repeated lumbar punctures and reduction of the pressure of the cerebro-spinal fluid, together with intravenous hypertonic saline, produced temporary remissions of the headache, the irregular fever continued and the patient's condition was deteriorating.

A quantity of antileptospiral horse serum was therefore obtained. This serum agglutinated the patient's leptospira at a titre of 1 in 300, with a trace of agglutination at a titre of 1 in 1,000. On June 17th 15 c.cm. of cerebro-spinal fluid were removed and were replaced by 10 c.cm. of this serum. During the next twenty-four hours the patient had an exacerbation of symptoms, with very severe headache and vomiting. He then improved considerably, and his temperature was normal for a week, but on the eighth day the temperature rose, and he had a severe attack of serum sickness, with generalized urticaria, oedema, and joint pains lasting some days. His nervous symptoms, however, were definitely alleviated, the headache completely disappeared, and he became mentally bright and alert; his general condition also improved. The only other treatment given at this time was a course of pil. ferri, 15 grains thrice daily, for the anaemia.

On July 15th the cerebro-spinal fluid was again examined. The pressure was 120 mm. of water; there was an increase of protein, and, although quite clear, the fluid contained 330 red cells per c.mm., but nevertheless the white cells were only 2 per c.mm.; the chlorides were 689 mg. per 100 c.cm., and the sugar 40 mg. per 100 c.cm. The fluid was inoculated into guinea-pigs and culture medium, but no leptospira were recovered. The blood and urine were also examined directly and by inoculation into guinea-pigs and medium, but no organisms were demonstrated. Nevertheless the patient continued to run a slight irregular temperature, and he occasionally complained of pain in the left side of the abdomen. Furthermore urine examined on July 23rd contained leptospira, as one of the two guinea-pigs inoculated on this day with the centrifuged deposit died of Weil's disease twelve days later.

Also on July 23rd, in view of the persistent pyrexia, 20 c.cm. of the antileptospiral horse serum were administered intramuscularly. Although this injection was preceded by a series of small graduated doses in an endeavour to desensitize the patient it was followed within a few hours by a sharp reaction, with a temperature of 103° F., a rigor, and vomiting. In view of the agglutination titre of this serum against the patient's strain it seemed quite likely that this dose would prove insufficient, and I suggested, therefore, before going on holiday, that it might be necessary to obtain more serum. The patient was also ordered campolon, 4 c.cm. intramuscularly on alternate days, and ostocalcium tablets, 21 grains thrice daily by mouth. These preparations were continued for about a fortnight, but no further serum was given, as at the end of this period the patient's general condition had so much improved that he was allowed out of bed. Although there were subsequently a few mild febrile oscillations, never higher than 100° F., the general progress continued, and at the beginning of September the patient was looking and feeling very well. The temperature had become normal, the spleen was only just palpable, the vision had improved remarkably, and the urine, by repeated tests, was apparently free from leptospira. Convalescence was interrupted by a short febrile attack associated with a small interlobar pleural effusion at the right base, but no evidence was obtained that this was due to leptospira.

Discussion

The two outstanding features of interest in this case are the long duration of the infection and the late onset of meningitic symptoms. Usually Weil's disease takes the form of a febrile illness of abrupt onset, with a primary pyrexia lasting about seven to ten days, followed by a secondary rise of temperature of a few days' duration during the third week. Jaundice may or may not be

present, and as the illness progresses large numbers of leptospira are usually to be found in the urine. Although convalescence is frequently slow, the fever and spirochaeturia are rarely much prolonged beyond the fifth or sixth week.

Garnier and Reilly (1917) have, however, observed a certain number of cases where the febrile attacks were abnormally prolonged, and they record two cases where leptospira were recovered from the urine up to 100 and 103 days respectively. In the first of these cases there was a series of febrile relapses over a period of more than three months, and leptospira were recovered from the urine on the occasion of each relapse, and for the last time on the hundredth day. During the course of this illness the liver and spleen became definitely enlarged, and there was slight but persistent jaundice, so that the authors remarked that this hepato-splenic form of Weil's disease resembled what had been described as Hanot's disease. In their second case jaundice was slight, and had disappeared by the twenty-seventh day, but successive attacks of fever continued until the sixty-second day. Leptospira were still found, however, up to the hundred-and-third day, by which time the patient was definitely convalescent. Although this patient could hardly be classed as a "carrier" in the usual sense of the term, it is not without interest to note that the parasites persisted in the urine for a month after the patient had become afebrile.

As already stated, usually by the early part of the second month the urine in Weil's disease is free from leptospira, and only rarely do the organisms persist to the end of this month, so that the duration of infection in the two cases quoted is exceptional. The case recorded in the present note is remarkable, then, for the extraordinarily long duration of the infection; the patient was ill and febrile for between eight and nine months, and leptospira were demonstrated in the urine more than thirty-three weeks from the onset of the disease.

The other interesting feature of the case concerns the late onset of the symptoms of meningeal invasion and the recovery of the organism from the cerebro-spinal fluid practically six months from the beginning of the illness.

Although meningitis is a well-known complication of Weil's disease it almost invariably occurs during the early acute stage of the illness. Costa and Troisier (1917), reviewing a series of such cases and summarizing the dominant features, state that leptospiral meningitis is of abrupt onset, that it arises during the acute stage of the general infection, that the meningeal symptoms undergo remission and relapse in harmony with the course of the general infection, that the evolution of the meningitis is always favourable, that the prognosis is dictated solely by the general condition of the patient, that the meningeal infection leaves no sequel, and that normal function is completely recovered. Furthermore, these authors draw attention to an important point when they add that in those cases where jaundice is absent the meningeal symptoms may completely dominate the clinical picture. In this latter connexion it may be remarked that a number of cases of meningitis with acute onset, relatively short benign course, and no apparent epidemiological relationship to any known infectious meningeal disease, have been described from time to time under a variety of names, and are often referred to as examples of acute aseptic meningitis. In these cases the cerebro-spinal fluid shows an increase of pressure and a polymorphonuclear or lymphocytic pleocytosis, but is sterile on culture. It may not be without interest that five of a number of such cases in Paris, described by Laubry and Foy (1910), Laubry and Parvu (1910), and Guillain and Richet (1910), were associated with jaundice, and that Rist (1910), in discussion, remarked that there were simultaneously in Paris many cases of benign infectious jaundice. It must be admitted that the few animals, including guinea-pigs, inoculated with cerebro-spinal fluid from a number of the cases of meningitis remained quite well, and although at this time the causal organism of Weil's disease had not been recognized, the occurrence of Weil's disease in them would hardly have been overlooked. It is to be remembered that even guinea-pigs often prove refractory to inoculation with leptospira. Investigation of suspected cases must embrace, if necessary, repeated examination of the cerebro-spinal fluid. The urine should likewise be examined, and it is worth noting that a greater measure of success may often be obtained if it is first rendered alkaline by treating the patient with alkalis. In addition, the results of agglutination tests with the patient's serum are of considerable value.

It is, of course, not suggested that cases of acute aseptic meningitis are necessarily examples of Weil's disease, but in the presence of any meningitis of unknown origin it would seem useful to consider the possibility of leptospiral infection. This is emphasized because the fact that a leptospiral infection may have no other clinical manifestation than that of a pure meningitis seems to require wider recognition, as is apparent from the following quotation taken from a recent paper by Mollaret and Erber (1935) dealing with the diagnosis of this syndrome.

"Incidément nous soulignerons la fréquence relative de cette affection. Pour la dernière saison épidémique de la spirochétose, nos examens à l'Institut Pasteur nous donnent un total d'une vingtaine de cas probables de formes meningées pures. Une telle maladie exige donc d'être mieux connue et peut-être spécialement, à l'étranger. En effet, lors d'un séjour à Londres, en juillet-août 1935, l'un d'entre nous a pu constater que de tels faits paraissaient absolument inconnus des cliniciens anglais. D'autre part, à l'Institut Wellcome le Dr. Brown, qui effectue practiquement pour la Grande-Bretagne la totalité des recherches sérologiques concernant la spirochétose ictéro-hémorragique, n'avait jamais eu l'opportunité d'étudier un cas de ce genre.

"En Allemagne, aucune mention correspondante ne figure dans le grand traité de Bumke et Foerster (1935)."

Marie and Gabriel (1935), describing what they call an epidemic of spirochaetal meningitis in children, state that there was no certain clinical sign indicating the spirochaetal nature of the disease, which was only detected by sero-diagnostic tests and by infecting guinea-pigs from the urine of one of the patients. Schüffner and Walch-Sorgdrager (1936), recording their observations on twenty-five cases of Weil's disease with meningeal symptoms, point out that meningitis occurred in 12 per cent. of the cases without jaundice, and they add that in meningitis of obscure origin the possibility of Weil's disease should be considered. Troisier, Bariéty, and Macrez (1935) have described a simple febrile form of leptospirosis without jaundice, haemorrhages, or any meningitic syndrome; and Kourilsky and Mamou (1935) have recorded forms without jaundice, but with symptoms suggesting influenza.

Typical Weil's disease is now being more widely recognized in England and elsewhere, and it may well be that atypical forms will be found with increasing frequency as clinicians keep in mind their possibilities. Among the number of authors who have discussed the meningitis of Weil's disease there seems to be general agreement that the nervous involvement is an acute disease, and that, where there is a typical attack of Weil's disease, the meningitis accompanies the acute phase of the general infection.

While it is possible that in the case recorded in the present communication leptospira may have invaded the meninges during the typical stage of the infection, there was no nervous involvement of sufficient degree to attract any attention. The present case differs from those previously recorded in that the first manifestations of meningitis occurred more than four months after the onset of the illness. The only other record having any resemblance to this appears to be one given by Davidson and Smith (1936), who investigated an outbreak of Weil's disease in Aberdeen. They state that:

"An interesting type of meningitis occurred in Case 32, six weeks after all signs of spirochaetal infection had passed. The patient was discharged from the City Hospital on 1.8.35, and was admitted to the wards of the professor of medicine, Royal Infirmary, Aberdeen, on 9.9.35 suffering from headache and great stiffness of the neck. Kernig's sign was present. The optic disks were swollen (2 D) and the edges blurred. No haemorrhages or exudates were seen. Lumbar puncture revealed a turbid fluid, under pressure (265 mm.). Examination of the cerebro-spinal fluid revealed large numbers of cells, mostly polymorphonuclear leucocytes. Sugar 0.018 mg. per cent. Chlorides 657 mg. per cent. Total protein 50 mg. per cent. No organisms could be seen in the stained films or cultivated from the cerebro-spinal fluid. It was believed that the most likely diagnosis was a mild attack of meningococcal meningitis. Accordingly, the daily removal of cerebro-spinal fluid was made and intrathecal injections of anti-meningococcal serum were given. The temperature remained elevated (100° to 102° F.) for twenty-three days; papilloedema gradually subsided, and the patient was discharged from hospital apparently cured. She was seen by one of the writers two months afterwards, when she was in perfect health, and no signs of central nervous system disease were present. The cause of this aseptic meningitis was never established, nor could any definite conclusions be drawn in regard to its connexion with the preceding attack of leptospiral infection."

In this case the meningitis did not arise until six weeks after the patient had apparently recovered from the attack of Weil's disease. Nevertheless, her cerebro-spinal fluid was not inconsistent with a leptospiral infection in that there was an increase of pressure, a polymorphonuclear pleocytosis, an increase in protein, and diminution in chloride, while no organisms were found in stained films or by culture. A tuberculous infection was unlikely, since two months later the patient was found to have made a perfect recovery.

The case recorded in the present communication differs, however, from this Aberdeen case in the following particulars. First, the present case arose during the course of an extraordinarily chronic but nevertheless active attack of Weil's disease, and there was no asymptomatic interval or period of apparent recovery between the primary attack and the onset of meningeal symptoms. Secondly, the nervous involvement progressed steadily over a period of two months and, until specific treatment was instituted, showed no sign of improvement or of remission.

In conclusion, this case demonstrates that Weil's disease may be a much more chronic infection than hitherto considered, and it shows an interesting and possibly significant fact in that the patient's urine contained leptospira thirty-three weeks from the onset of the disease. It also reveals that meningitis of a progressive type may arise at a late stage, in the present instance months after the typical manifestations of Weil's disease had subsided and the jaundice had long disappeared. Finally, there is the anomalous finding that the patient's serum possessed practically no power of agglutinating the specific organism.

Summary

1. A prolonged case of Weil's disease associated with meningitis of a progressive type is described.

2. No sign of meningitis was recorded during the early typical stage of the disease, which was accompanied by jaundice, and the first evidence of meningeal invasion was only observed four months after the beginning of the illness.

3. Although the patient had apparently had an attack of visceral Weil's disease in December, 1935, and was still infected months later, it is to be noted that both his serum and cerebro-spinal fluid possessed practically no agglutinating power against the infecting organism and against various other strains of leptospira.

4. The diagnosis was made by demonstrating the organism in the cerebro-spinal fluid and urine by guinea-pig inoculation.

5. Leptospira were recovered from the cerebro-spinal fluid and from the urine up to twenty-five and thirty-three weeks respectively from the onset of the disease.

6. Until an anti-leptospiral serum was administered the illness was apparently steadily progressive.

7. The meningitic manifestations of Weil's disease are discussed, and since the disease may occur without jaundice attention is particularly drawn to the necessity for considering this infection in any obscure case of meningitis. Indeed, since Weil's disease may fail to present any specific syndrome its possibility should be borne in mind in any case of obscure pyrexia.

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C. D. Bartels (*Hospitalstidende*, September 15th, 1936, p. 2) reviews his experience of 230 cases of hypertrophy of the prostate. Seven cases of cancer were found in the group of ninety-one patients on whom prostatectomy was performed. In none of these cases was the diagnosis of cancer made before the operation. There were altogether eighteen cases of cancer among the author's prostatic patients, and in as many as three of them the cancer developed a considerable time—one, six, and twelve years respectively—after the prostatectomy. In none of these three cases had a histological examination of the removed prostate shown any sign of cancer at the time of operation. With regard to operative treatment, the author insists that to ignore the findings of functional renal tests is to court disaster, but he tempers this warning with the reservation that no one functional test is sufficient as a guide to operation, and that a single unsatisfactory report of a functional test should not warrant forthwith the stamping of a case as inoperable, seeing that the renal disease of prostatics is eminently curable and can disappear under treatment with a catheter or cystotomy. In the preparation of the patient for an operation it is important not only to relieve the back pressure on the kidneys but also to allow plenty of time for the adequate regeneration of the tubular epithelium. And this may take weeks and months, and in some cases even years.

NUTRITIONAL ANAEMIA IN THE EAST END OF LONDON

BY

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The investigation described in the present communication was undertaken in an attempt to gain some idea of the incidence of so-called nutritional anaemia among the poorer-class children of the East End of London. The subjects of the study comprised some 290 patients admitted during the past two years under my care to the Princess Elizabeth of York Hospital for Children. It might be argued, of course, that this is not suitable material for the purpose, and admittedly complicating factors such as hydraemia and anhydraemia may be introduced and so obscure the true state of affairs. However, much of our knowledge of the physiological has been obtained from a study of just such material, and the uniformity of the findings would seem to go some way in disposing of this objection. Nevertheless, the nature of the material must be borne in mind when evaluating the results and attempting any application to the population as a whole. In this regard it was felt at the outset that in view of the current belief that anaemia increases the morbidity rate a specially high incidence of anaemia would be found in this particular section of the population, but, as will be seen from the records which follow, this expectation was not fulfilled.

There has been no selection of the material excepting that a few examples of leukaemia, acholuric jaundice, anaemia following haemorrhage of the newborn, purpura haemorrhagica, and coeliac disease (all conditions in which nutrition does not play a specific part) have been excluded. Children suffering from acute pulmonary disease (pneumonia), pyelonephritis, meningitis, rheumatic infection, gastro-enteritis, and debility are, however, included. A certain proportion of the children presented absolutely no signs of disease and had come under observation because of indefinite malaise. The children, varying in age between a few days and 14 years, all underwent one blood examination within a day or so of their admission to hospital, and in the classification of the results no distinction is drawn between the sexes, because it was found that the curves for boys and girls were identical.

The patients admitted to the Princess Elizabeth of York Hospital come from the poorest stratum of society, the fathers for the most part being casual labourers, 25 to 30 per cent. of whom were during the time of the inquiry the victims of unemployment. It is also worth remembering in this connexion that the district surrounding the Princess Elizabeth of York Hospital was quoted in the recent Government survey of housing as the black spot of the country for overcrowding. Here surely, if anywhere, nutritional anaemia might well be expected to abound.

The blood was taken from the ear, except on a few occasions when the finger was the source, and the haemoglobin was estimated in all instances by Haldane's method, the test colour being standardized at least every four months. As the object of this investigation is to obtain some measure of the incidence of anaemia, and of its severity when present, it is apparent that this can be attained only by finding how the individual figures fall in relation to the normal or physiological limits. An average of the findings would not only be quite useless for such a purpose but might be quite misleading, because with such a method any unduly low readings might be more than compensated for and obscured by others abnormally high. Hence in the charts (I and II), demonstrating the findings, the individual estimations are shown in relation to the accepted range of the normal, the lower level of which is represented by a continuous line. This lower level—the borderline of anaemia—corresponds to a level of 10 per cent. below the average given by Hutchison (1909) and by Holt and McIntosh (1933) as found in healthy children. In this connexion it may be pointed out that this level is in close agreement with the minimal findings recorded in healthy children by Merritt and Davidson (1933) of New York, Drucker (1923) of Copenhagen, and by Perlin (1903) of Berne.

Haemoglobin Content

In Chart I are plotted the individual haemoglobin estimations, shown for each month during the first year of life and for each year thereafter up to 14 years. The continuous line on the chart shows, as already noted, the lower limit of normality according to the findings of various authors in large numbers of healthy children resident in Europe and America. It will be noted that the general trend of the haemoglobin reveals the well-known high level present immediately after birth, the rapid fall during the early weeks of life but tapering off later, and the recovery during the later months of infancy, which is continued throughout childhood.

It will be noticed also that a certain number of estimations fall below the level of normality. The majority of these, however, occur during the first months of life, and these examples of anaemia are probably the result of congenital causes. In many instances the low reading may be simply an expression of haemolysis of the newborn, whatever the cause of this may be, which is acting in an abnormal degree. In some cases the cause may be prematurity, with a consequent insufficient store of iron at birth, or it may have been due to anaemia of the mother and her inability to supply the normal needs of the foetus. How far these different aetiological factors were at work in our cases we cannot say, but in some of them the anaemia was due to severe maternal haemorrhage during labour, or undue bleeding from the cord, both of which factors, we think, are not sufficiently considered in attempts to account for anaemia in the very young infant.

We have had under observation during the first week of life twins, one of which (the first born) was quite normal, whereas the other (the second born) was markedly anaemic, and the only discoverable aetiological factor was a severe uterine haemorrhage between the delivery of the first and second twin. But whatever may be the cause of these examples of anaemia during the first three months, a dietetic factor (deficient intake of iron) cannot be invoked, as it has never been found possible to prevent the fall in haemoglobin at this age by the administration of iron in ample amounts. One specially remarkable feature in the results is the extreme rarity of low readings during the latter half of infancy (6 to 12 months) in view of the current opinion that nutritional anaemia is very common at this age.

Although the majority of pathological findings in the cases here recorded were during the first three months of life, a few were met with throughout the whole period of childhood. This, of course, is not to be wondered at, since many of the children were moderately ill on admission to hospital and suffering from such conditions as pyelonephritis, septic bronchiectasis, bronchopneumonia, and rheumatic carditis and pericarditis. But the really striking feature of the investigation is that for the most

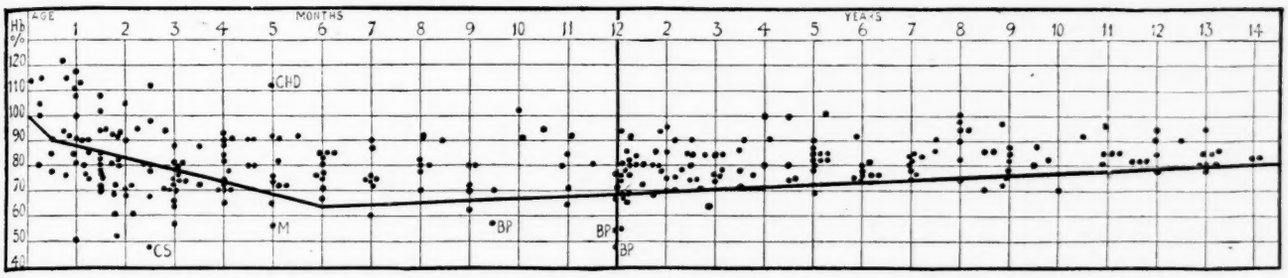

CHART I.—Showing haemoglobin estimations. The black line shows lower limit of normal. CS = congenital syphilis. M = meningitis. B = bronchopneumonia. P = Pyelonephritis. CHD = congenital heart disease.

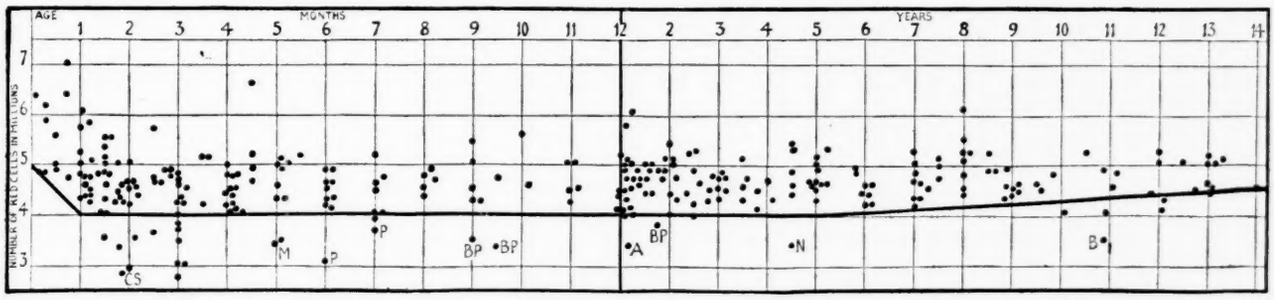

CHART II.—Showing red cell estimations. The black line shows lower limit of normal. M = meningitis. P = pyelonephritis. BP = bronchopneumonia. A = septic arthritis. N = nephritis. B = bronchiectasis. C = congenital syphilis.

part the readings fall within the range of the physiological, and therefore do not suggest any great incidence of anaemia of a nutritional or any other variety.

Red Cell Count

In Chart II the red cell estimations are represented in the same manner as were those for haemoglobin. The continuous line delimits the lower range of the physiological according to Hutchison (1909) and Holt and McIntosh (1933), and thus it is only those readings which fall below this level that can be taken as evidence of anaemia. The red cells show the same general behaviour as the haemoglobin—a fairly wide variation, a high initial value, and a fall during early infancy with a later recovery, which is continued throughout childhood. In the case of the red cells, just as was noted with regard to the haemoglobin, the great majority of the figures fall within the range of the physiological. And again, the majority of anaemic readings are during the first months of life, although an occasional slightly subnormal value is observed at every period of childhood. But it will be noted that for the most part these low readings were found in examples of severe toxic conditions, in which a more probable aetiology is seen than in that of a deficient iron intake. Another feature deserving comment is the parallelism between the haemoglobin and red cell estimations, a fact which by itself militates against any idea of nutritional anaemia.

Conclusions

1. Examination of the blood of the sick child in the East End of London reveals for the most part normal haemoglobin and red cell values.

2. Anaemia when present during infancy is most frequent during the first three months, and is probably the result of congenital causes or of haemorrhage at birth.

3. Anaemia occurring during later infancy and childhood is rare, and, when present, is probably the result of toxic conditions.

4. There is no evidence from the section of the population studied that nutritional anaemia is common.

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DIAGNOSIS OF MALIGNANT DISEASE OF THE PHARYNX

BY

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It is now about a quarter of a century since the technical difficulties of the surgical treatment of cancer of the pharynx were solved. The chance of cure which lateral pharyngotomy holds out might have been expected to stimulate interest in the early diagnosis of this common form of malignant disease. It is a fact, however, that recognition of these growths in their early stages, upon which any successful application of surgical excision depends, is still a rare event.

Before describing in detail the symptoms of carcinoma of the pharynx there are two points which I wish to emphasize. The first is that the early symptoms of this disease are trivial in nature, but although superficially resembling trivial symptoms of less significance they have certain peculiarities which should always arouse suspicion of malignancy. The lack of familiarity with these early symptoms is doubtless largely due to the overwhelming nature of the major symptoms which always supervene sooner or later. The patient with severe dysphagia, urgent dyspnoea, or continual pain is unlikely to dwell on the minor disturbances which preceded them, and in the presence of an obvious case of malignancy there is little temptation to the busy practitioner to probe into the past history.

The second point is that in the majority of cases, when symptoms first appear, some abnormality can be seen by

indirect laryngoscopy: it is in a wider use of this simple method of examination that there lies most hope for an improvement in diagnosis. The use of the laryngeal mirror is not the prerogative of the specialist, nor for the purpose with which we are concerned does it require the specialist's skill. In what follows the elaboration of these two points will be my chief object.

Distribution

The tumours which I have chosen to discuss fall within the anatomical limits of the epiglottis above and the lower border of the cricoid cartilage below. Those above the epiglottis do not present the same difficulties in diagnosis, being, with the exception of the nasopharyngeal, accessible to direct examination. Within these limits the vast majority of malignant tumours are squamous carcinomata. In the oropharynx and nasopharynx the pathology is more varied, and many of the tumours are of lymphatic origin. Below the epiglottis there is little lymphoid tissue in the pharyngeal wall, and tumours arising from it are very rare.

Squamous carcinomata of the region defined fall into well-defined groups according to the sites at which the neoplasm starts, and it is one of the peculiarities of the disease that these groups have a very definite sex distribution. These sites are: (1) the epiglottis, (2) the aryepiglottic fold, (3) the lateral wall, (4) the pyriform sinus, and (5) the post-cricoid region. For convenience the first four are grouped together as epilaryngeal; the fifth is often referred to as hypopharyngeal.

The epilaryngeal cancers occur almost exclusively in men, the hypopharyngeal exclusively in women. A further difference between them is that the hypopharyngeal tend to occur about ten years earlier than the epilaryngeal. The anatomical distribution of 100 consecutive cases seen at this hospital in the years 1926–35 inclusive is shown in Table I, the age distribution of the same series in Table II.

TABLE I.—*One Hundred Consecutive Cases of Carcinoma of the Pharynx*

(Period of observation: Ten years—1926–35)

Sex.	Total Cases.	Epilaryngeal.	Post-cricoid.
Male	70	70	None
Female ..	30	1	29

The epilaryngeal group includes tumours of the epiglottis, the lateral wall of the pharynx, the aryepiglottic fold, and the pyriform fossa.

Symptomatology

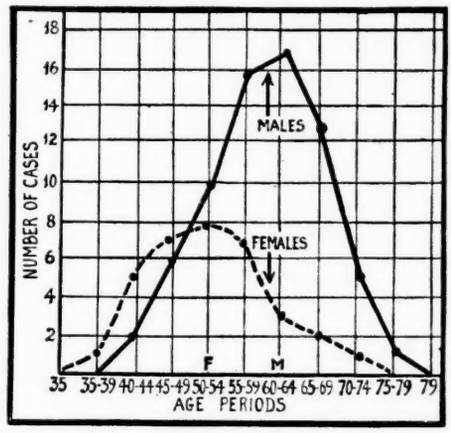
The symptomatology of the disease may conveniently be considered under the two main groups defined above. It is not necessary to consider separately the four types in the epilaryngeal group. Their differentiation is important to the surgeon, but of no moment in diagnosis.

EPILARYNGEAL GROUP

The commonest early symptom in this group is a persistent abnormal sensation in the throat, which is variously described; it may be a sore throat, a tickle, a feeling of a lump, or a little pain on swallowing. Whichever of these it be, there are two features that should arouse suspicion of malignancy. The first is that the patient is able to locate the sensation to a definite part of the throat, and the second is its persistence. Sometimes the symptoms start with the supposed arrest of a crumb or small bone in the throat, and the patient complains that his throat feels as if the foreign body were still present. Too often, of course, the patient himself decides that nothing serious is wrong, and neglects to consult his doctor until more urgent symptoms develop, but this failure to attach due importance to these sensations is by no means confined to the patient.

Next in frequency among the initial symptoms is the presence of enlarged glands in the neck; this type of case will be considered later. Another symptom that may be present early is some interference with the voice. The presence of the tumour may alter the resonance of the voice, or it may infiltrate the arytenoids and limit the movements of the cords.

TABLE II.—*Age Incidence of 100 Cases of Cancer of the Pharynx*



Sooner or later dysphagia occurs, and at the time of admission this is most commonly the dominant symptom. In some of our case histories dysphagia is the first symptom noted, but it is doubtful whether it ever occurs without any preceding abnormal sensations. I have already mentioned the tendency to overlook minor symptoms when the major have supervened.

POST-CRICOID CARCINOMA

In the history of the typical case of post-cricoid carcinoma there are two features which, if their significance were realized, would always arouse suspicion of malignant disease, but which unfortunately more often have the reverse effect of allaying such suspicion. The first is that the patient says that she has for many years, sometimes all her life, had some slight difficulty with deglutition. This all too often makes one suspect the patient of hysteria, whereas it is a most important indication of the possibility of post-cricoid cancer. The second is that, when other symptoms are added, they are at first intermittent. Perhaps the patient has a sudden difficulty during one meal with a fit of choking or a sensation of a bolus sticking in the throat, and then no more trouble for a week or two.

The fact that the dysphagia is a single incident, or appears as a few such incidents separated by intervals of freedom, is very likely to lead to its dismissal as something trivial. So important do I regard this combination of symptoms that I consider a single serious attack of dysphagia in a patient with a long history of slight difficulty to be an indication for a thorough examination, if necessary including oesophagoscopy.

In the later stages dysphagia of a persistent type becomes the dominant symptom, overshadowing all others. Owing to the position of the growth obstruction to the passage of saliva is usually a prominent feature when real dysphagia begins. The saliva collects in a pool behind the arytenoids, and has frequently to be coughed up because it tends to overflow into the larynx. I shall refer again to the importance of the pool of saliva in laryngoscopy.

Interference with the movements of the cords is common in this type, and sometimes a change in voice is the first symptom for which the patient seeks advice. Another symptom that may occur early is a little pain and tenderness in the neck, due presumably to extension of the growth outside the pharynx.

Common to both groups, and in our series more frequent in the epilaryngeal, is the occurrence of glandular enlargement as the first symptom. Any patient at or past middle age who develops enlarged glands in the neck should be suspected of malignant disease. The teeth and tonsils seldom give rise to such enlargements for the first time in the second half of life. All too often, however, they are held responsible and removed. In a case of carcinoma of the pharynx this is a most unfortunate error, since the elimination of oral sepsis always improves the condition of the pharynx and, if the growth is latent, diagnosis will be further delayed.

There can be no doubt that sepsis plays an important part in the evolution of a pharyngeal cancer, and its aggravating effect on the symptoms is such that the chances of early diagnosis are much greater when it is present than when the mouth is clean. Moreover, so dramatic may be the improvement after its elimination that no case can be dismissed as inoperable on the local signs in the pharynx before the teeth have been extracted. It is perhaps unfortunate that the majority of women who develop post-cricoid carcinoma are edentulous. It may well be for this reason that, when symptoms first occur in this type, the growth is often surprisingly large.

Some indication of the relative frequency of the symptoms enumerated is given in Table III. It must be understood that these data are taken mostly from students' case histories written with no special knowledge of the disease, and often all too brief.

TABLE III.—*One Hundred Cases of Cancer of Pharynx*

First Recorded Symptoms:

Abnormal sensations in the throat: males 30, females 13.
- Sore throat.
- Pricking sensation.
- Intermittent soreness.
- Dry throat.
- Relaxed throat.
- Tickle in throat.
- Roughness in throat.
- Pain on swallowing.
- Pain in tonsil.
- Excess of phlegm in throat.
- Feeling of a lump in throat.

Enlarged glands: males 22, females 1.
Dysphagia: males 10, females 11.
Hoarseness: males 7, females 1.

Dominant Symptom on Admission:

Dysphagia: males 32, females 25.
Stridor: males 4, females 1.

Diagnosis

I shall refrain from any systematic account of all the possible manifestations of carcinoma of the pharynx, since I am only concerned with the early diagnosis of the disease. If a patient seeks advice for any of the symptoms enumerated previously it may be possible sometimes from palpation of the neck alone to decide that the patient is suffering from malignant disease. In most cases, however, this is not possible, and there is only one method that is readily available whereby the significance of the symptoms can be determined—namely, indirect laryngoscopy. It follows that every patient who has a persistent or recurrent abnormal sensation in the throat should be examined with the laryngeal mirror. In the majority of cases when symptoms first appear there will be some visible abnormality.

I have already mentioned that no great skill is necessary to detect the signs of carcinoma of the pharynx with the laryngeal mirror. In every clinical examination, however, it is useful to know what to look for, and laryngoscopy in these cases should be performed, with certain possibilities in mind. The abnormalities that may be found are as follows.

1. *Ulcer or Tumour.*—The site and extent of the lesion is unimportant; a single glimpse is all that may be necessary to show that a growth is present.

2. *Swelling of the Arytenoids.*—The mucous membrane over these structures is very sensitive to circulatory disturbances and readily becomes swollen in the presence of adjacent growth or sepsis. If the arytenoids are swollen it indicates organic disease, and it does not matter in the first instance if the growth cannot be seen.

3. *Alterations in the Movement of the Arytenoids.*—The arytenoids may be fixed by infiltration or by recurrent nerve palsy. They are much easier to see than the vocal cords, and in a difficult case it is much better to study their movements than to struggle for a glimpse of the larynx itself.

4. *Abnormal Accumulations of Mucus or Pus:* (i) *in the pyriform fossa, and* (ii) *in the hypopharynx.*—These two parts of the pharynx must always be examined during phonation, which opens up the recesses and may reveal abnormalities not visible with the larynx at rest.

It is not possible to see the whole pharynx in a single field of vision, and it is therefore necessary to tilt the mirror to examine in turn the epiglottis, the arytenoids, and aryepiglottic folds, the lateral and posterior walls, the pyriform fossa, and the hypopharynx. Phonation is necessary to show the movements of the arytenoids, and to open up the pyriform fossae and hypopharynx.

In the epilaryngeal group an ulcer or tumour can usually be seen, except in the early pyriform cases. In these the only abnormality may be an accumulation of muco-pus in one pyriform sinus, or oedema or limitation of movement in the adjacent arytenoid. In the post-cricoid group three stages may be recognized with the laryngeal mirror. In the first there is an accumulation of mucus or muco-pus behind the arytenoids; in the second there is, in addition, some oedema of the arytenoids; in the third the edge of the ulcer is seen projecting from the pool of mucus. At any stage limitation of movement of the arytenoids may be observed.

It is not to be supposed that indirect laryngoscopy solves all diagnostic difficulties in cases of carcinoma of the pharynx; it will seldom fail, however, to reveal some abnormality. It is a great responsibility to decide whether further investigation of a case with negative findings is necessary. But if there is a reasonable suspicion of malignancy it should not be dismissed until all possible methods of investigation have been employed. The only certain way to detect an early carcinoma of the hypopharynx is by oesophagoscopy, and it requires courage to insist on this when the patient's symptoms are still of a trivial nature. There is, however, no escape from the fact that this disease always starts with trivial symptoms, and our only chance of making early diagnoses lies in regarding every case of persistent or recurrent abnormal sensation in the throat as a possible example of malignant disease.

Since the practical applications of this principle will mean much extra trouble, both for the patient and for the doctor, it may well be asked whether there is anything to be gained by early diagnosis, whether in fact it would not be better to leave the patient in peace until his serious

symptoms develop. I can give you no dramatic statistics to confound the attitude of *laissez-faire*, but I can state and show by examples that the disease is curable by surgery.

The results of the application of surgery in the 100 cases of carcinoma of the pharynx is shown in Table IV.

TABLE IV.—*Operative Treatment in One Hundred Cases of Cancer of Pharynx*

Operable:
49 cases: 35 males, 14 females.
Radical Operations Completed:
25 males: mortality 9, alive 4.
14 females: mortality 7, alive 3.

You will see that the operability rate is fairly high, but it must be understood that "operable" in this hospital is a somewhat elastic term; many of those that were submitted to radical operation were really advanced cases. The fact that operation can occasionally succeed in apparently hopeless cases may be taken as an indication that the type of growth is not essentially very malignant. The mortality of the treatment is high, again partly on account of the advanced state of the disease in many cases, but also on account of the severity of the operation. Seven of the hundred patients are alive as the result of surgical treatment alone, the longest interval since operation being ten years, the shortest eighteen months. Other cases in this 100 have been relieved by radiotherapy, but there are as yet no long-standing survivals as a result of this treatment.

These few successes show that these forms of malignant disease are curable by surgery. It has yet to be shown that any other method gives better results. But, whatever method of treatment is favoured, it will obviously have more chance of success if diagnosis is made early.

Summary

Cancer of the pharynx begins with trivial but characteristic symptoms.

A plea is made for closer investigation of minor disturbances of the voice and of swallowing.

Indirect laryngoscopy is the most useful method of examination in suspicious cases.

The disease is curable by surgical excision.

ULTRA-VIOLET IRRADIATION IN THE TREATMENT OF VARICOSE ULCERS, VARICOSE ECZEMA, AND VARICOSE VEINS

BY

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When taking charge of the light department of the St. John Clinic four years ago some ninety-two patients suffering from varicose ulcer and varicose eczema had been attending once or twice a week for over three years. Although they had regularly received local treatment with ultra-violet rays emitted from the tungsten arc their lesions did not heal. The technique of treatment was changed to methods which will be fully described, and after three months sixty-six of these patients were completely healed and discharged cured (72.5 per cent.).

Briefly the technique adopted included: (1) exposure of the ulcer and the skin area 1 to 1½ inches surrounding the edge of the ulcer to massive doses, equivalent to six erythema doses of rays, emitted from the quartz air-cooled mercury vapour lamp; (2) application of adhesive elastic bandages. The result of such treatment has been consistently successful. In past years many clinics and hospital out-patient departments have contained numerous patients attending regularly for long periods, months and years, for treatment of chronic varicose ulcer. Much tiring labour applying dressings was the task of nurses, doctors, and their patients. The difficulties of the economic "home conditions" and finance of these patients made the task of healing varicose ulcers and the hygiene of clean limbs almost impossible. Many such patients have to work for a living. The introduction of elastic adhesive bandages has been a great boon. The exposure to ultra-violet rays of wave-length shorter than 3,000 Angström units sterilizes the surface of the ulcerated area and augments the circulation: this promotes the healing and makes the surface wound inoffensive and free from unpleasant odour.

Technique of Treatment

The size and nature of the ulcerated area of skin is recorded by direct tracing over a piece of transparent tissue paper with a dermatograph pencil. This tracing is transferred to a sheet of foolscap paper, and the area of unhealed skin is recorded week by week, so that observation as to the nature and rapidity of healing can be observed. The leg and ulcerated area is then cleansed with acetone and oil of eucalyptus. A piece of tissue crêpe paper is next applied to cover the whole leg. The paper covering the ulcer and the skin area surrounding this for 1 to 1½ inches is cut away, and pieces of adhesive strapping are applied to support the paper covering the healthy skin of the leg and foot. The ulcer area and surrounding skin is then exposed to the rays of the quartz air-cooled mercury vapour lamp at a distance of 12 inches for ten minutes. A vacuum type of quartz air-cooled mercury vapour lamp, consuming 2.5 amperes and 105 volts between the electrodes, is employed. This is equivalent to five times the erythema dose of the normal white skin.

Immediately after exposure the tissue paper is removed and an elastic adhesive bandage is tightly applied from the base of the toes, over the foot including the heel, and up the leg to the knee. The patient is instructed to keep the bandage clean but not to interfere with it in any way. It is kept on for one week, when the patient again reports. The bandage is then removed, the skin is cleansed with acetone, and the treatment repeated. Week by week the ulcer area becomes smaller and smaller until healing ultimately occurs.

It is indeed amazing to see the clean ulcer area exposed when the bandage is removed. Although this bandage has been left undisturbed for one week and covers a septic discharging ulcer, the surrounding skin remains clean, with no foul odour and no evidence of reinfection or undue inflammation. The use of elastic adhesive bandage has been of great help in augmenting the circulation, supporting varicose veins, and healing varicose ulceration. The application of erythema doses of ultra-violet rays is of much value in accelerating the formation of granulation tissue and stimulating the skin cells.

It is impossible to obtain a consecutive series of similar clinical types to make a critical comparison of the effect of elastic adhesive bandage alone and the added effect of exposure to ultra-violet rays. The exposure of varicose ulcers to ultra-violet rays in mild suberythema doses is of no avail; more intensive dosage equivalent to five skin erythema doses causes local inflammatory reaction, and

the covering with elastic adhesive bandage is then necessary to relieve discomfort. The combination of a massive dose of ultra-violet rays and elastic adhesive bandage causes a cleaner granulating surface and rapid healing. Varicose eczema surrounding the ulcer area responds favourably to ultra-violet irradiation. General observation indicates that ultra-violet rays accentuate the successful result produced by the adhesive bandage.

At the final stages of healing the elastic bandage may be discarded and a milder dose of ultra-violet rays applied to the skin of the whole leg and foot—for example, exposure at a distance of 20 inches to the air-cooled quartz mercury vapour lamp for five minutes. The patient is told to bathe the limb daily in warm alkaline water, warm water and oatmeal being suitable. The limb having been dried, olive or almond oil is applied.

Varicose veins associated with varicose ulcers must be treated by means of injection of a sclerosing solution whenever possible. Varicose ulcer is likely to recur if varicose veins are not so treated. Those cases in which old age, ill-health, or the size of the veins renders injection treatment unsuitable require an elastic stocking after the ulcer has been healed. In cases of varicose ulcer associated with recurrent attacks of thrombophlebitis, oedema, swelling, and vasomotor changes, symptoms of an obstructed circulation may be seen. Such cases require ultra-violet irradiation of the skin of the legs combined with infra-red and luminous irradiation. This treatment is applied once or twice a week for about two or three months, until signs of oedema and other signs and symptoms of obstruction of circulation have disappeared.

Varicose Eczema

Varicose eczema is difficult to heal. Localized patches situated over the skin area of the internal or external malleolus often foreshadow varicose ulceration. Varicose eczema is often associated with phlebitis and other circulatory complications due to varicose veins. Secondary infection by the common pyogenic bacteria causes a spreading and acute infiltrative or exudative dermatitis. Intermittent attacks of cellulitis or septic thrombophlebitis cause severe complication. Chronic fibrosis, pigmentation, oedema, and hypertrophic sclerosis of the skin covering a tortuous mass of varicose veins offer a typical clinical picture; there is often a history of fifteen to twenty years' disability.

In these cases of varicose eczema the reaction of the skin to ultra-violet light rays is of particular interest. During the phase in which the skin is bright red, showing areas of exfoliation and inflammatory oedema, the skin is tolerant to radiation, and four to six normal erythema doses may be applied without undue reaction. However, when the skin is pale, or pigmented by thickened hypertrophic sclerosis, the area of scar tissue is tolerant to radiation, but the surrounding skin is often extremely sensitive, and a normal erythema dose will then cause an intensive reaction which will prove of great discomfort to the patient. Ultra-violet rays must then be applied with caution. The capillary circulation of the skin is often disturbed, and thrombosis of varicose veins may cause an area of obliteration, and ischaemia or necrosis of the skin approaching ulceration may result. Other irregularities of circulation and secondary infection cause acute and chronic inflammation. Since the local application of ultra-violet rays to the skin augments the capillary circulation and stimulates growth of epithelial cells, it is of great value in healing varicose eczema.

The technique is similar to that applied in the treatment of varicose ulceration. There is an intensive exposure to ultra-violet rays, equivalent to six normal skin erythema doses, to localized patches of eczema, and the normal skin for half an inch surrounding each zone is also irradiated. Elastic adhesive bandage is then applied to the whole foot and leg and left undisturbed for one week. The ultra-violet irradiation causes an active inflammatory reaction, followed by oedema, blistering, and finally exfoliation of the skin. Bandaging the limb with adhesive strapping and thus keeping the treated lesion covered gives relief to the patient, as the painful symptoms following intensive ultra-violet irradiation are thereby diminished. Healing of the skin gradually takes place, and week by week steady improvement may be recorded. The treatment is repeated once a week for about six to eight weeks; by this time healing is well advanced.

At this stage the varicose veins should be treated by weekly injections of sclerosing solutions. The local intensive irradiation is stopped and the skin of the anterior or posterior surface of the whole leg is exposed to the rays once a week at a distance of thirty inches for five minutes, using the quartz air-cooled mercury vapour lamp; this is equivalent to two normal skin erythema doses. The limb is bandaged as before. The object of this treatment is to stimulate the capillary circulation and the epidermal cells of the skin of the leg. It greatly relieves the circulatory disturbance caused by varicose veins, and gives much relief to the patient. At the final stages of healing bandages are discarded and the limb is daily bathed in tepid, mildly alkaline water, and olive or almond oil is applied.

The Treatment of Varicose Veins

Although the modern treatment by sclerosing solution has greatly benefited many cases of varicose veins, there are unfortunately some in which the enormous size of the veins or the general condition or health of the patient does not allow of this technique. Many of the cases unsuitable for injection treatment get relief from agents which improve the skin and capillary circulation. This explains the good results obtained at many of the clinics and spas which specialize in treatment of varicose veins, phlebitis, and its sequelae. Exposure of the skin of the legs to erythema doses of ultra-violet rays greatly relieves the symptoms in cases of old-standing varicose veins. The cases selected for such therapy were those in which (*a*) the health of the patient or (*b*) the enormous size of varicose veins did not permit treatment by injection of sclerosing solutions or by ligature. Treatment was applied twice a week for eight weeks.

Cases considered suitable for injection therapy were treated as follows. The skin of the anterior or posterior surface of the leg was exposed to rays of the air-cooled mercury vapour lamp at a distance of thirty inches for five minutes. The alternative skin surfaces were irradiated each week. The patient was next made to stand on a small stool about twenty-four inches in height, the operator sitting at a lower level, on a stool about six inches high. The veins were injected in order, starting from below in the foot and working up the leg. One single injection of 3 to 4 c.cm. of a 10 per cent. solution of sodium morrhuate (Parke, Davis and Co. Ltd.) was made each week. Directly after a successful intravenous injection had been made the patient sat down on a chair in such a way that the limb rested on the stool while the patient faced the operator. During this procedure the operator kept a sterile swab, moistened with 1 in 3,000 spirit and mercury biniodide, on the site of the puncture. An elastic adhesive bandage was then applied to the foot and leg. This remained undisturbed for a week, when the patient again reported for

treatment, the bandage was removed, and the treatment continued.

On an average six to eight injections at weekly intervals are needed for successful treatment of varicose veins. Roughly a length of four to six inches of vein is thrombosed by each weekly injection. The result of this technique is invariably successful in suitably selected cases. Failure to obliterate the varicose veins occurs when the width of the vein is too big for successful clotting. Some of these cases are suitable for ligature high up in the leg or thigh, followed by injection with sclerosing solution.

Complications may occur such as a sudden spreading thrombophlebitis passing along the course of the superficial saphenous vein of the whole leg, particularly in cases where there has been a history of previous attacks of phlebitis, and where there have been mild attacks of septic thrombophlebitis. It is a wise precaution to warn such patients of the possibility of this trouble; suspicious cases are recognized with clinical experience. The patients must rest in bed until the signs and symptoms of active inflammation have subsided. Such cases spontaneously cure themselves of varicose veins, but treatment for restoration of a new collateral circulation is needed. The only disadvantage of this technique is an economic one: the drugs and dressings required are expensive, but as they cure chronic sufferers of varicose veins their cost is small compared with that involved by prolonged attendance at out-patient clinics for palliative treatment.

There are old-standing varicose ulcers, some of over twenty years' duration, which are at times difficult to heal. In some cases there is more ulcerated area than normal skin in the leg, and it is amazing how such patients have managed to work and carry on their lives and have retained their limb and survived.

Treatment of Deep-seated Ulceration

In cases of deep-seated ulceration, perhaps of a small area but surrounded by extensive fibrosis adherent to the deeper tissues and fixed to underlying bone, it is difficult to restore adequate blood supply to stimulate granulation tissue and healing. Errors in metabolism associated with advancing age, such as glycosuria, gout, and nephritis, may often add to these difficulties. Some of these cases ultimately change in character and become malignant. After efforts to heal the ulcers by ultra-violet irradiation and bandaging have made little progress other methods may be attempted. The edge of the ulcer and fibrous tissue may be excised by means of surgical diathermy, or the whole base of the ulcer may be destroyed by diathermy fulguration. Intensive doses of ultra-violet rays may now stimulate healing by augmenting the separation of a slough and exposing new vascular granulation tissue and epithelial cells. Skin grafting is not successful unless a good and healthy bed of granulation tissue is available. By these means these difficult and resistant cases may be encouraged to heal.

During the past four to five years over 240 cases of varicose ulcers have been treated and over 90 per cent. have been healed within six months. Patients are asked to report afterwards for examination every two months, but some patients fail to do so and make conclusions difficult. However, recurrences of varicose ulcer fortunately have been few. There was recurrence in eight cases, in each of which the patients failed to report for intervals as long as one to two years. The results of early cases of varicose ulcer and varicose eczema are excellent; in some instances there is healing after three to four treatments. The usual routine adopted includes the injection of varicose veins as soon as ulcer or eczema is healed. The final results in cases of varicose veins are good. Providing the cases are suitable over 95 per cent. are cured. The patients report afterwards at intervals of three to six months. Observation of a series of cases, the number healed, and those unhealed, after a fixed period of time, conveys little information, for an early and healthy varicose ulcer may be healed in three weeks, while an old-standing septic ulcer may need constant supervision and treatment for many months. It is difficult, if not impossible, to obtain a regular series of similar clinical types of cases suitable for critical statistical analysis. The conclusion is reached that by the technique which has been described cases of varicose ulcer, varicose eczema, and varicose veins may be rapidly and permanently healed in an average period of four to six months. The technique needs a regular routine and organized team work by nursing and medical staff.

Clinical Memoranda

Fulminating Agranulocytosis

The following account of a case of fulminating agranulocytosis seems worthy of record.

CASE REPORT

The patient was a married woman aged 66. Apart from recurrent attacks of mild bronchitis her health had been good, though she was a frail little woman weighing only 6 st. odd. On the day of onset she was well and able to carry out a day's shopping; towards evening she felt suddenly ill and shivery, and continued to shake all night. I was sent for at 7 a.m., and was greeted by the remark, "Doctor, I have never felt so poorly in my life"; but apart from a temperature of 102.5° F. there was little to be made out; the fauces were free from any exudate or hyperaemia. In the evening the temperature was still sustained and the general condition was unchanged; there was a complaint of rawness behind the nose, making breathing painful. The patient had a bad night, the pain behind the nose increased, and swallowing became painful. By morning her condition was distressing, though the temperature had fallen to 100° F. and the pulse rate was slower. I was dumbfounded to find a grey-black area of necrosis on both tonsils and immediately gave 24,000 units of antidiphtheritic serum and called in Dr. F. B. Smith. A leucocyte count was taken and also a swab of the throat; culture of the swab proved negative, and the leucocyte count showed only 360 white cells, among which were no granular cells, though ten times the normal routine volume was used.

A diagnosis of agranulocytic angina was made, and Dr. Wilkinson of Manchester was called in consultation. When he arrived at about 2 a.m. the patient's condition was pitiable, every breath or swallow causing distress, though the temperature and pulse were now normal. Dr. Wilkinson agreed as to the diagnosis, and 40 c.cm. of pentose nucleotide was given intravenously, followed by 10 c.cm. every three hours and a further 20 c.cm. intramuscularly. The pulse and temperature remained normal, but the patient gradually became comatose and died the same afternoon, the pulse becoming irregular two hours before death.

The total duration of the illness from the first clinical symptom was sixty-eight hours. I should add that a further blood count was carried out at 10 a.m. on the last day; the count had then fallen to 130 cells, and again no granular cells were seen, though thirty times the normal volume of fluid was used. It is of interest that the patient had been in the habit of taking cephos tablets, but an analysis of these showed no evidence of amidopyrine.

Preston. O. K. G. GUYER.

Reviews

THE ANAEMIAS

Pathological Physiology and Clinical Description of the Anaemias. By William Bosworth Castle, M.D., S.M. (Hon.), and George Richard Minot, M.D., S.D.(Hon.), F.R.C.P.Ed.(Hon.). Edited by Henry A. Christian, A.M., M.D., LL.D., Sc.D.(Hon.). (Pp. 205. 15s. net.) New York and London: H. Milford, Oxford University Press. 1936.

The Oxford University Press has paid Dr. W. B. Castle and Dr. G. R. Minot the compliment of republishing their chapter on anaemia for the Oxford Loose-Leaf Medicine as a separate volume with the title set out above. This little book, with its 163 pages of text and its 646 references, is certainly the best account available for the general physician of the remarkable advances in haematology which have been made during the last decade. To the more specialized haematologist and pathologist it is of great interest to be able to read the considered opinion of two men whose work has revolutionized the treatment and clarified the pathology of pernicious anaemia.

Much attention is paid to the size of the red cells, not only their mean diameter, but also their volume and thickness, as these data are of much value in diagnosis and classification. The enumeration of the immature red cells or reticulocytes, long known to haematologists but first popularized by Whipple, Minot, and Murphy, has proved invaluable in the separation of anaemias due to diminished blood formation from those due to increased destruction, and in the observation of the effects of treatment. At the same time as he has been making exact determinations on the individual red cell, the haematologist has learnt from Boycott to envisage the whole of the circulating red cells and their precursors in the bone marrow as a single organ, the erythron. The erythron is the largest organ in the body, and it is obvious that to repair the wear and tear of the circulating red cells the marrow must be supplied with adequate materials.

An important group of anaemias is due to lack of raw materials for haemopoiesis, and this deficiency may be "absolute," when the diet is at fault, or "conditioned," when the digestion or the utilization of the haematinic principles is at fault. In pernicious anaemia the deficiency is conditioned by the absence of a specific ferment or intrinsic factor, which is normally present in the gastric juice and the mucosa of the stomach and duodenum. The best known of the haematinic principles are the P.A. factor, iron, copper, vitamin C, and thyroxine. The authors suggest that in health, when there is an adequate supply of these substances, blood formation is regulated by the oxygen tension in the bone marrow. The relation of alimentary disturbances to pernicious anaemia and to the hypochromic anaemias associated with iron deficiency is fully discussed. Castle and Minot apparently think that infection and an inflammatory gastritis are unlikely explanations of the gastric defect in the majority of people with pernicious anaemia, and they point to McCarrison's studies of the profound changes produced in the alimentary tract by defective diets as offering an alternative explanation. A pathognomonic feature of pernicious anaemia is increase in the size of the red cell, but the authors believe that macrocytosis is not always the result of a failure in the supply or utilization of the P.A. factor. They do not accept Wilkinson and Israëls's conception of achrestic anaemia, but include such cases under the heading of aplastic anaemia; many patients with the diagnosis of aplastic anaemia prove to have a moderately cellular marrow after death, and the term "aregenerative" is more appropriate even if hybrid. The authors also doubt whether there is any connexion between the macrocytic anaemia of liver disease and pernicious anaemia.

The spleen remains an organ of mystery. It is not clear why it should enlarge in anaemias due to depressed blood formation, such as pernicious anaemia and idiopathic hypochromic anaemia, though it is suggested that this may be an effort to conserve haematinic materials. Castle and Minot believe that if other blood dyscrasias such as aleukaemic leukaemia, and Hodgkin's and Gaucher's diseases are excluded, then splenic anaemia or Banti's disease is always the result of mechanical obstruction of a chronic nature to the venous return from the spleen or the portal system in general. It is, they say, "an act of faith rather than of reason to believe in the primary nature of the splenic enlargement." They point to the good results obtained by symptomatic treatment, especially with massive doses of iron. Splenectomy may improve health by removing a large abdominal tumour, and it may lessen the risks of haematemesis by diminishing the portal blood flow, but it is in no sense a specific cure for the anaemia or a reliable prophylactic against haemorrhage. These views are undoubtedly shared by the majority of the younger school of haematologists, and there has thus been a complete reversal of opinion on the need for splenectomy in Banti's disease.

FINGERPOSTS TO GENERAL PRACTICE

An Introduction to General Practice. By E. Kaye Le Fleming, M.A., M.D. (Pp. 150. 5s. net.) London: Edward Arnold and Co. 1936.

It is perhaps natural to expect that the medical man whom the British Medical Association chooses as Chairman of its central Council should be of mature wisdom and tried experience, as well skilled in affairs as in purely professional matters; but it need not follow that, as in the case of the present chairman, Dr. E. Kaye Le Fleming, he should also have the pen of a ready writer and the command of a limpid, lucid English style such as few of our profession attain to. His *Introduction to General Practice*, designed for senior students and the newly qualified, will be of the greatest value to those circles; but there can be few seniors, whether general or special practitioners, who will not profit by a perusal of it. In simple terms, incapable of misconstruction, he sets forth a lofty ideal of what the general practitioner should aim at and how he should set about realizing his aims. Our Chairman's thirty-five years in practice have been years of momentous changes in the medical care of the people, and his survey of these changes and of the prospects of further change shows a capacity for vision of larger issues not always to be found in those who are themselves in the hurly-burly of startling events.

Apart from the sections on national health insurance, hospitals and clinics, the functions of the General Medical Council, medical defence societies, and similar topics, the most individual note is struck in the advice as to the handling of patients, the avoidance of misunderstandings, and all that goes towards the formation of a "bedside manner." This is all admirable, both in matter and in tone, though there are cynics who may question Dr. Le Fleming's advice to tell the patient "in simple language the reason of his malady and the method and purpose of the remedies." Certainly the old saw that there are no intelligent patients, so that it is futile to appeal to their intelligence, contains quite a large enough modicum of truth to be worth bearing in mind. None, however, are likely to disagree with his criticism of "the reluctance of the individual to raise his eyes from the ambit of his own practice and to face the great issues which are slowly

but surely shaping the destiny of himself and his successors, and his still greater reluctance to play his part in moulding the future of medical practice." One could multiply quotations from almost every page of this short book, which everyone about to embark or recently embarked upon general practice should read and re-read: on partnership work alone there is a chapter well worth the price of the whole book.

To point out tiny slips seems almost ungracious amid such a feast of excellence; but in a second edition it might be well to alter the statement that the doctor in attendance at a birth has to register it within thirty-six hours, when in fact his duty is confined to notification. Nor is it, we think, correct that he alone is liable to penalty for failing to notify, though the law may be a dead letter in respect of the others on whom the duty is laid. A redraft of a sentence to draw the distinction between puerperal fever and puerperal pyrexia might also be worth while, as also of another to make it clear that non-members of the B.M.A. may utilize the services of the Medical Insurance Agency. But such few and trivial blemishes serve, by contrast, to show up the high level of excellence of a book from which patients as well as doctors will derive lasting benefit—if they are fortunate enough to come across it.

SALPÊTRIÈRE SURGICAL PROCEDURES

Techniques Chirurgicales. By A. Gosset. (Pp. 433; 219 figures. Broché, 105 fr.; cartonné, 125 fr.) Paris: Masson et Cie. 1936.

This volume contains a full description of the renowned surgical clinic of the Salpêtrière and of the chief surgical procedures upon which its fame has been built. Professor Gosset became surgeon-in-chief at the Salpêtrière in 1913, and seven years later transferred to that clinic the whole of the surgical work of the Hôpital Necker, so that we have here a record of continuous work extending over a period of twenty-three years. As the hospital contains 350 beds and is one of the busiest surgical centres in Paris the record is of very special surgical importance, and this is increased by the care which has been given to its accurate presentation.

The volume opens with an account by Professor Gosset himself of the surgical service at the Salpêtrière and a very full account of the methods of sterilization adopted. This is followed by a description of the pathological department by its director, including important details as to the method of photomicrography which he adopts, and especially the use of infra-red light for this purpose. A series of short but valuable articles follows, devoted to anaesthesia, to trigeminal resection, to cancer of the superior maxilla, and to diaphragmatic hernia. Two chapters of very high value are contributed by Dr. Charrier and Dr. Loewy on gastrectomy for ulcer and for cancer respectively. Professor Gosset contributes an article on appendicitis to which his wide experience gives a peculiar value, and this is followed by a useful article on intestinal obstruction. Two of the best chapters in the book are by Dr. Jean Gosset and Dr. Leibovici on the treatment of cancer of the colon, and the volume concludes with contributions on fibroids and on the treatment of club-foot.

The articles are, without exception, of a very high level of excellence, and they are written with a thoroughly practical outlook. Their presentation and illustration might well arouse the envy of any surgeon. Not only do the illustrations reach a very high artistic level, but they are so skilfully constructed that it would be quite possible to appreciate all the more important points considered without knowing a word of French. We regard the volume as a very important addition to surgical literature, both as representing the long service of a famous clinic and as setting forth the successful practice of a most distinguished group of surgeons in some difficult and important branches of surgery.

A MONTESSORI BOOK

The Secret of Childhood. By Maria Montessori, M.D., D.Litt. Translated and edited by Barbara Barclay Carter. (Pp. 279. 7s. 6d. net.) London: Longmans, Green and Co. 1936.

The name of Dr. Maria Montessori is well known to all who are interested in childhood, and this book gives a brief account of her views and her experience. It is a popular account intended for parents and teachers rather than a scientific exposition, yet the scientific worker, whether medical or psychological, may find pleasure and profit in a *credo* resulting from years of patient observation and devoted service. The book is divided into three sections, dealing in turn with early child development, the author's educational method, and the relation of the child to society. The first of these sections is an excellent example of how good an account can be written of a very difficult subject in simple language, suitable for any layman, and with a complete avoidance of psychological technicalities or pseudo-psychological jargon.

The most interesting part of the book is the second, where, again in the simplest of language, the account of the first "Casa dei Bambini" sets forth the essence of the Montessori method. The casa started in the humblest fashion, an attempt to keep slum children from damaging tenement property rather than a school; there was little money and no trained staff, and Dr. Montessori, herself quite inexperienced, came to it with the determination to learn from the children rather than to make them learn from her. Wherein lies the whole kernel and essence of the Montessori method: observing, helping, suggesting, rather than teaching or forcing. The adult, Dr. Montessori claims, must play a negative part; all is free and open for the child; he chooses his own materials, and learns from them because they interest him. An American psychologist has said, "Seventy-five per cent. of what we teach children you couldn't prevent them finding out for themselves." One has only to watch a small boy mending a bicycle, or "tinkering" with a wireless set, to see how mechanics are most easily learnt; yet most of us can remember the dreadful boredom with which we struggled with the theoretical elements of the subject. As well expect the shuttle on the loom to be interested in the completed pattern as expect a normal boy to connect the fascinations of machinery or of mechanical toys with the dull diagrams drawn—smudgily—on graph paper in his classroom. Given the method of free interest, we are told, the need for punishment, and even for reward, fades out. Relieved from the emotional strain of competition and of fear the child becomes stable, confident, and happy. These are children as they should be, and Dr. Montessori claims, not that her children are given extra help, but that children educated in the orthodox schools are abnormally handicapped. What Dr. Montessori does not stress is the strain which the application of such a method imposes on the patience and wisdom of the teacher. To act is always easier than to observe, and it is fatally easy to teach a class a set lesson by a set method. Yet from what we know of the psychology of childhood we may confidently assert the dangers of set lessons and set methods for young children, and we must pay tribute to Dr. Montessori, who formulated her principles empirically

long before the emotional psychology of childhood had been investigated. One thing is certain: the teacher who is to practise the method must be herself possessed of an exceptionally balanced nature; we may be forgiven, indeed, for wondering how much of Dr. Montessori's undoubted success is due to her method and how much to her own exceptional personality.

Other sections of the book contain plenty of interesting and stimulating ideas; the suggestion that young babies should not be clad, for example, and some others which may jar on the medical ear, as may the almost devotional note which the author tends to strike. These are but small things: the child is Dr. Montessori's god, and she is no minor prophet. If, then, in her writings the dispassionate attitude of the scientist gives way at times to the passionate zeal of the apostle, how shall we blame her?

PSYCHO-ANALYSIS

Inhibitions, Symptoms and Anxiety. By Sigmund Freud, M.D., LL.D. Authorized translation by Alix Strachey. (Pp. 179. 6s. net.) London: Hogarth Press and Institute of Psycho-Analysis. 1936.

Mr. Alix Strachey has recently translated from the German a monograph written by Professor Sigmund Freud entitled *Inhibitions, Symptoms and Anxiety*. This work was first published in Vienna in 1926 by the Internationaler Psychoanalytischer Verlag. An American translation, "supervised by L. Pierce Clark," appeared in 1927, but this was never issued in England and is now out of print. The serial publication of another American translation, by Henry Alden Bunker, was begun in the *Psychoanalytic Quarterly* in October, 1935, by which date, however, the present translation was virtually complete.

This monograph is an interesting and valuable addition to the International Psycho-Analytical Library, edited by Dr. Ernest Jones. Coming as it does from the founder of the psycho-analytical movement, the book will be especially prized by those who are conversant with the theory and practice originated many years ago. It is an important contribution to psychopathology.

CLINICAL DERMATOLOGY

Introduction to Dermatology. By E. H. Molesworth, M.D., Ch.M. (Pp. 520; 151 figures. 25s.) London: J. and A. Churchill. 1937.

Australian textbooks on dermatology are certainly not numerous, and the *Introduction*, by Dr. E. H. Molesworth of Sydney, is welcome as an exposition of this branch of medicine, in which emphasis is naturally placed on the types of skin disease which are most characteristic of the Antipodes. As the author points out, the most striking difference between the dermatology of Europe and of Australia lies in the respective frequency of tuberculosis and cancer. He states that since 1910 he has only seen one case of lupus vulgaris originate in Australia. On the other hand, to quote his own words, "carcinoma of the skin provides the daily task and common round of the dermatologists of Australia." Fortunately, owing to the keenness of the general practitioner to recognize it in its earliest stages, and the skill of the specialists in treatment, the number of deaths occasioned by it remains insignificant in comparison with those from malignant disease of any other organ, but its importance is reflected in the volume before us by the space given to the discussion of the disease and its treatment by radiation.

Another disease, leprosy, which in Western Europe is scarcely more than a curiosity, is still a serious problem among the aboriginals of Australasia and the Pacific Islands. Consequently Dr. Molesworth has devoted a space to it proportionate to its gravity. The only aspect of leprosy which is not fully dealt with here is the treatment, for the very good reason that this volume is intended for private practitioners, who are seldom called upon to treat it, for the vast majority of cases, at all events in more or less civilized communities, are segregated in institutions and colonies. While, naturally, special attention has been given by Dr. Molesworth to those parts of the subject upon which his own experience is centred, we hasten to add that he has nevertheless presented a well-balanced picture of clinical dermatology, which we are sure will become a standard textbook in the medical schools of Australasia. Dermatologists of other regions will also find it both interesting and instructive, for it contains a good many original observations by an author whose views are always sound and well balanced.

No notice of a dermatological work is complete without some reference to the illustrations. These consist entirely of photographs and photomicrographs of good quality. For coloured illustrations Dr. Molesworth prefers to refer readers to one of the atlases by MacCormac and Semon. As he rightly says, this is far better than the insertion of a mere dozen coloured plates in his own textbook, while the inclusion of an adequate number would raise the price to a prohibitive level.

Notes on Books

Food and the Principles of Dietetics, by Dr. ROBERT HUTCHISON and Professor V. H. MOTTRAM, has the distinction of being one of the most readable textbooks on this subject in the English language, which, moreover, incorporates a remarkable amount of varied information. We therefore welcome the issue of the eighth edition (E. Arnold and Co., 21s.). Its appearance only two years after the seventh is an indication of the well-deserved popularity of the work. Dr. Hutchison did a good service to the profession when he decided to publish his lectures in book form at the beginning of the century. The text has been generally revised, and, in particular, a good deal of new information has been incorporated in the early chapters regarding the important problem of the calorie requirements of populations. The form and arrangement of the volume have not been altered, and it is so well known that any detailed description is unnecessary.

We have received volume xxvi (1936) of the *Transactions of the Pathological Society of Japan*, an imposing volume, printed largely though not altogether in German and English, and containing abstracts, many of which are excellently illustrated, of 173 papers read before the society. These cover a wide and representative range of subjects, and indicate that the major problems of infection and of neoplasia and a variety of other studies which are engaging attention nearer home are being vigorously pursued by many workers in Japan. Apart from a few parasitic infestations, the only disease unfamiliar to us which forms the subject of a group of papers is the epidemic encephalitis which has recently occurred in Japan. We have only to mention such names as Shiga, Yamagiwa, and Kitasato to recall that Japan has made contributions of the first rank to pathological knowledge, and the present activity in Japanese laboratories bids fair to maintain their traditions.

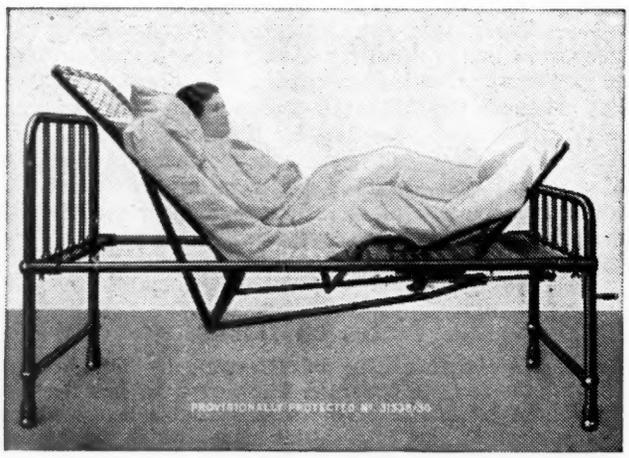
Lymphatologie (Heft 5) gives an account of about fifty researches in lymph carried out at the Anatomical Institute of the Imperial University at Kyoto. The present section deals with the physiology of the lymph glands and biochemical and immunological problems connected with this system. The various researches therefore cover a wide variety of problems, and Professor Funaoka, the head of the department, is to be congratulated on the manifold activity he has inspired.

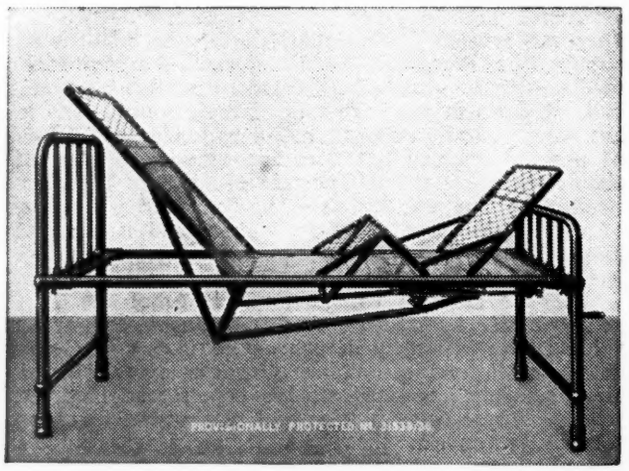
Preparations and Appliances

BEDSTEAD OF NEW DESIGN

Dr. MELBOURNE THOMAS (medical superintendent, Llwynypia Hospital, Rhondda) writes: The bed-frame about to be described was built after long residential experience in hospital had taught me something of the value, in convalescence, of muscular relaxation and postural comfort. I do not think the importance of these factors in convalescence is commonly or sufficiently appreciated. They are worthy of elaboration, but this is outside the scope of this communication. Furthermore, I believe that patients often leave a bed at home to enter a less comfortable one in hospital.

These observations stimulated me to design the bed-frame illustrated, wherein the shortcomings of the "Fowler bed-





stead" as commonly designed have been minimized in the following ways: (1) causing the buttocks to rest in a ⎽╱ shaped interval in place of the customary ╲╱ shaped interval; (2) supporting the proximal two-thirds of the thighs in place of the knee-joints; (3) providing a foot-rest, and that at a variable inclination. No. 1 results in greater comfort to the lumbar region—a point of considerable importance—and prevents the usual tendency in a "Fowler bed" in a weak patient to gravitate towards the foot-end. No. 3 gives the patient a feeling of postural security, prevents the tendency to plantar flexion at the ankle-joint, and relieves the toes of the weight of bedclothes.

The bed is further designed to accommodate comfortably either a tall or a short patient. The designs have been implemented by the makers with a simple and neat mechanism, which appears durable and is easily worked by a nurse. I recommend the bedstead to be used in conjunction with a sponge-rubber mattress. Experience of the use of this bedstead with a variety of patients in the sick wards has confirmed what was expected of it. It gives, I believe, to the patient a degree of comfort hitherto unavailable.

The bedstead is manufactured by Albert Phillips Ltd., Excelsior Works, Birmingham, and may be obtained from the Surgical Manufacturing Co. Ltd., 83-85, Mortimer Street, London, W.1.

BLOOD-TRANSFUSION CANNULA

Dr. J. H. DIXON (Royal Free Hospital) writes:

The method described below of drawing blood from donors for transfusion is simple to perform and certain in obtaining the quantity of blood required. The instrument used consists of a trocar and cannula not unlike that used for the induction of artificial pneumothorax, only it is smaller and its stuff box at the handle end contains no washer. The size of the cannula is practically the same as that supplied with Jube's transfusion syringe. The apparatus might well be described as a mixture of the good points of a Jube's cannula and an artificial pneumothorax induction cannula without their disadvantages.

A vein in the ante-cubital space is located and the skin is anaesthetized by injecting subcuticularly a few minims of 2 per cent. novocain. The point of the needle touches the skin over the vein. This skin is then pulled laterally before the injection is made, thus ensuring that the vein is not punctured. In the same position a small nick is made in the bleb of novocain with a tenotome (this greatly facilitates the passage of the

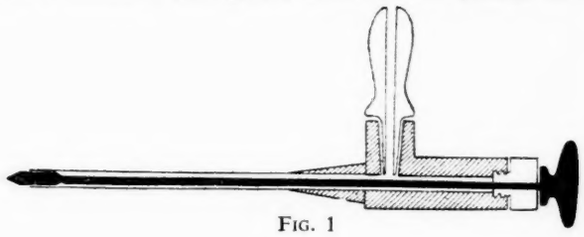


FIG. 1

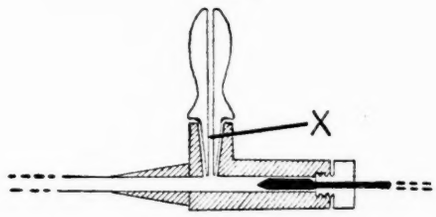


FIG. 2

trocar and cannula through the skin). Both trocar and cannula must be held while venipuncture is made; when in position the trocar will be as in Fig. 1. The trocar is now withdrawn to the position shown in Fig. 2. Blood will then flow down the cannula and out at the opening X, into which is fitted a nipple to which a length of rubber tubing is attached. The following are points worth mentioning: (1) Patients have expressed surprise that no pain was caused to them after the first prick to admit novocain. (2) When the cannula is in and the trocar is withdrawn no damage can be done to the inside of the vein because the end of the cannula is quite blunt. (3) The cannula can be cleared without disconnecting the rubber tubing or spilling any blood by pushing back the trocar. This procedure is carried out at three- to four-minute intervals to ensure that blood does not stick to the sides of the cannula. It is better to do this early, because if left till the blood stops flowing solid blood clot might be dislodged and cause trouble later. (4) Using the above technique it appears that the vein will deliver any amount of blood, whereas with the older methods the needle tends to become blocked after about 400 c.cm.; with the above method, however, 800 and 1,000 c.cm. may be withdrawn (not quickly though) with ease. (5) No blood need be seen by the donor at any time during the operation. (6) It is an advantage to have two nipples with tubing so that a change may be made should the tubing become blocked. The trocar and cannula can be had in any size required, and is made by the Medical Supply Association of Gray's Inn Road, W.C.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY, JANUARY 2, 1937

THE NEW TYPE

By an agreeable coincidence the *British Medical Journal* appears in a wholly new dress exactly eighty years after it assumed that name. When the Provincial Medical and Surgical Association was founded in July, 1832, it had no weekly or fortnightly periodical to report its proceedings and represent its interests. Like other medical societies of the day it published an annual volume of *Transactions,* which appeared between 1833 and 1853; the last eleven volumes were overlapped by those of the *Provincial Medical and Surgical Journal,* a weekly publication of which the first number appeared on October 3rd, 1840. The title of that paper—our direct ancestor—was changed in January, 1853, to the *Association Medical Journal,* and four years later, on January 3rd, 1857, the organ of the renamed British Medical Association took the title *British Medical Journal.* "With a more comprehensive name," said the Editor, "we hope to be able to present to the Association a journal more comprehensive than it has hitherto been possible to furnish."

For many months past special committees of the Association have had under consideration a thoroughgoing reform of the typography and lay-out of the *British Medical Journal,* and they were fortunate in enlisting the services of Mr. Stanley Morison, who had been largely responsible for the complete change of type-face undertaken by the *Times* in the latter part of 1932. The main purpose of the change now made under Mr. Morison's advice is to help the reader and the reader's eyes. The type used to-day for the whole of the letterpress of the *British Medical Journal* and its title-page and table of contents was the product of some years of experiment in Printing House Square, and it had been subjected to severe tests before adoption by the *Times.* It is a clear plain print, especially designed for easy reading when set up in columns and produced under newspaper conditions. The designers put it forward in 1932 as "a common-sense type for an everyday purpose . . . free from anything in the nature of gratuitous novelty or pleasantry." It is bolder and more legible than any type-face we have hitherto used. The types used for headings and cross-headings of articles are based on the letter of the text fount, thus achieving harmony and unity of design throughout the pages of print—a feature still lacking in many periodicals which in other respects conform to the modern demand for legibility and "readability." The device printed in red on our title-page is the work of Mr. Eric Gill. At page 32 this week we publish an article explaining the changes that have been made in the outward appearance of the *British Medical Journal* and the principles that underlie them.

THE MILK REORGANIZATION COMMISSION

After intensive work lasting over a period of nearly two years the Reorganization Commission for Milk has presented its report to the Government.[1] The terms of reference comprised an inquiry into the working of organized milk-marketing schemes in Great Britain, with power to make recommendations for their improvement. It will be remembered that a Milk Marketing Board for England and Wales was established in October, 1933, and in Scotland three distinct boards were set up, which came into operation between December, 1933, and October, 1934. The effect of these boards on milk production and distribution has been complex. The producer has benefited by the virtual abolition of price competition and by the provision of a guaranteed market for all the milk he can produce. The distributor has benefited from fixation of the minimum retail price of milk, which has thus eliminated undercutting, but has been allowed no effective say in the final settlement of either the retail or the wholesale price. The total volume of milk produced does not seem to have increased much, but the fact that producers have found it more remunerative to sell their milk than to use it on the farm has led to an enormous increase in the volume of milk sold for manufacture. Since the use of milk for this purpose is unprofitable, the retail price of liquid milk has had to be fixed at a high level in order to prevent the pool price for producers from falling too low. In other words, the loss on manufacturing milk has been paid for by the consumers. It is not therefore surprising that, in spite of the increased purchasing power of the public, the consumption of liquid milk has shown practically no tendency to increase.

After discussing general principles the Commission lays down three fundamental objects of organized milk marketing. The first is to ensure that all the various sections interested in the milk industry are treated equitably. The second is to secure that production is carried on in the areas and by the methods providing the greatest efficiency

[1] Milk. Report of Reorganization Commission for Great Britain. Ministry of Agriculture and Fisheries, Economic Series, No. 44, pp. x and 362. H.M. Stationery Office, London. (1s.)

and economy, and that the processes of distribution are conducted at the lowest cost consistent with the quality standards required and the type of service given. The third is to increase the amount of liquid milk consumed by all classes of the community, but particularly by those who need it most. The existing marketing boards, which are essentially organizations of producers, are unfitted to carry out all these objectives. It is therefore recommended that a permanent Milk Commission should be set up to act as an independent and impartial authority, watching over the interests of producer, distributor, and consumer alike, controlling production, fixing wholesale prices, co-ordinating research, education, and publicity, and planning the progress of the industry to the advantage of the nation as a whole. Numerous other proposals are made. It is suggested that the burden of subsidizing unprofitable milk manufacture should be transferred from the consumer to the State. Taken in conjunction with proposals for rationalizing the production and distribution of milk, this would probably result in a lowering of the retail price of milk by at least a penny a quart. Producers' prices and buying prices should be fixed not by bargaining but on the basis of past experience and future estimates, while retail prices should be decontrolled. The resultant undercutting which might occur would be prevented by fixation of the wholesale price and by public health regulations governing the sale of milk; in areas where a monopoly was feared a maximum retail price might be laid down. A system for increasing the consumption of milk, similar in principle to the present scheme for milk in schools, might be introduced, enabling milk to be supplied at a reduced cost to certain areas of the country or to certain sections of the population, such as expectant mothers, miners, factory and office workers, and so on.

All these are interesting and important suggestions. From the public health point of view, however, none is of such importance as that dealing with the quality of the milk supply. In the words of the report, "the necessity for ensuring to the consuming public an ample supply of clean, safe milk at a reasonable price must be the overriding consideration." To do this the Commission insists on the payment of the producer according to the quality of the milk he supplies, independent of whether or not the milk is sold to the public at a higher price. The importance of this last clause will be realized by all those who are anxious to improve the quality of milk production and to eradicate disease on the farms. So long as the effort of the producer is made contingent on the willingness of the public to pay a higher price for its milk, no real progress in the cleaning up of the herds can be expected. For the furtherance of the same object the Commission recommends that early consideration should be given to the advisability of setting up a central veterinary service for the control of cattle disease and for ensuring the proper administration of regulations governing the various milk grades. The force of these considerations is amplified in an addendum to the report by Sir John Orr, who is so impressed with the public health aspect of the milk problem and the urgent need for supplying the public with milk free from risk of carrying disease, that he recommends that special attention should be devoted to this aspect of the subject by the proposed Commission.

It is needless to add that the recommendations made in the report for improving the quality of the milk supply will receive the unhesitating support of the medical profession, which knows only too well that any substantial increase in consumption of milk must await the establishment of confidence in its cleanliness and safety. The attainment of this object involves not only the production of milk under clean conditions from preferably healthy animals, but also the pasteurization or equivalent heat treatment of all milk destined for human consumption.

NASAL SINUSITIS IN CHILDREN

An important contribution to paediatrics is contained in the current issue of the *Archives of Disease in Childhood*,[1] in which Mr. James Crooks deals in a masterly manner with disorders of the nasal sinuses in children. His material consists of examples of infection of the maxillary antrum in 100 children. Any or all of the accessory air sinuses may be diseased in children, but the maxillary antrum offers distinct advantages to the investigator. The work here summarized comprised two groups of investigations. One consisted of twenty-four children in whom infection of the maxillary antrum was proved by routine puncture of the antra in 100 children undergoing tonsillectomy at the Hospital for Sick Children, Great Ormond Street. Such children had presumably some upper respiratory disorder, possibly due to antral infection; secondly, they could be readily punctured while under the anaesthetic for the tonsil operation; thirdly, operation would not be taking place if a "cold" was present (thereby eliminating the possibility of temporary antral infection); and, fourthly, it has been stated that removal of the tonsils and adenoids usually results in the clearing up of antral infection. Any antrum found to con-

[1] December, 1936. Published by the British Medical Association. Yearly subscription 25s., single number 4s. 6d.

tain pathological material was subjected to re-aspiration six months later, such a period being allowed for spontaneous recovery or that due to removal of the tonsils and adenoids. Such re-examination showed that in only nine out of the twenty-four children were the antra then clear of pathological material. In other words, 15 per cent. of children being operated upon for removal of the tonsils and adenoids had chronically diseased antra. This is a startling fact which may go far to explain the trying group of "failures" after tonsillectomy in which symptoms of respiratory tract infection and other disorders recur despite efficient removal of obviously diseased lymphoid tissue in the naso-pharynx.

The second group of seventy-six children in Mr. Crooks's analysis were collected upon a clinical basis as presenting the signs and symptoms, including *x*-ray evidence, of antral disease. The average age of these children was 7½ years, and thirty-seven of them could be classified as cured after treatment. This consisted of antral lavage (with an average number of washes between two and three) in all but two children, in whom intra-nasal antrostomy was necessary. Twenty-six of the remainder were improved after treatment and thirteen failed to show improvement. Mr. Crooks discusses these successes and failures in some detail, emphasizing that local measures must be supplemented by general measures, such as a good diet and a stay at the seaside. The clinical manifestations of sinus disease have been analysed for the 100 children in the two groups, and these may be listed as follows (with the percentage incidence indicated in brackets): nasal discharge (84), colds (83), cough (82), snoring and mouth-breathing (62), headache (44), otitis media (44), cervical adenitis (37), sore throat (25), together with a less well-defined group of systemic manifestations resulting in a pale tired child, with difficulty in concentration, loss of interest in work and play, and a change of temperament towards a morose ill-tempered disposition. This last is of great interest in view of the claims made for the frequency of sinus infection in certain mental disorders. Discussing the relation between sinusitis and infection of the tonsils and adenoids, Mr. Crooks affirms his belief that sinusitis is a common cause of inflammation of the adenoids and to a lesser degree of the tonsils. Certainly he appears to have proved conclusively that removal of the tonsils and adenoids alone will not cure infected sinuses, and he regards such an operation as of secondary importance to treatment of the sinusitis itself.

Many other problems are dealt with by Mr. Crooks which cannot be extensively discussed here. The bacteriological aspects of the subject, for example, are treated at some length. Routine swabs were taken from the nose in the 100 children undergoing routine removal of tonsils and adenoids, and the results of bacteriological examination (carried out by Dr. A. Signy) were compared with bacteriological investigation of the contents of the 200 antra aspirated in this part of the work. A notable difference was discovered, since the staphylococcus was often present in the nose but rarely in the antrum, and the same applied to the *Micrococcus catarrhalis*. The streptococcus was often found in the nose, and was the cause of antral infection in a number of cases. The pneumococcus was the most frequent cause of antral infection, but was less frequently found in the nose. It was characterized by thick yellow-green pus, usually present in large quantity. Another important point can be mentioned in conclusion—namely, diagnosis. Mr. Crooks claims that *x*-ray examination is the most sensitive of all the diagnostic tests for sinusitis. Transillumination is not so accurate, and presents several fallacies. Puncture-aspiration (the technique of which is described in detail) affords an absolute proof of antral infection, and therapeutic lavage can be carried out at the same time. Mr. Crooks is to be congratulated on a study full of interest for all those concerned with the health of the child.

ASTHMA RESEARCH

The latest annual report of progress of the Asthma Research Council states that this body is continuing its policy of using funds received from the general public for the remuneration of qualified workers who publish their results in the medical press. The Medical Advisory Committee keeps itself informed concerning investigations in asthma at home and abroad, and the programme of research is arranged accordingly. Reports are appended recording the year's work at several asthma clinics. The policy at Guy's Hospital has been the most thorough and careful study of small groups of cases representing the product of ruthless exclusion and elimination. Following a report that asthma in the Channel Islands was frequently associated with bronchiolar infection by monilia and often improved by treatment with the appropriate vaccine, Dr. F. A. Knott studied the prevalence of monilia infections in asthma patients in London. The incidence of such infection in London asthmatics was found to be extremely low, and no evidence of specific cutaneous hypersensitivity to monilia was obtained. Dr. Rogerson, investigating asthmatic children from the psychological standpoint, found that their intelligence was above the general level; he also noted such features in personality as over-anxiety and fear of failure. With regard to the effect of psychological factors in facilitating or inhibiting the allergic antigen thought to be responsible for an attack, he noted in many cases a latent period of about one hour between

the psychological stimulus and the attack. At King's College Hospital interest has been concentrated on the value of remedial breathing exercises, and cases have been followed up over a period of four years. In cases so treated it is the improvement in the reserve air rather than the total vital capacity that is of chief importance. To achieve this improvement proper control of diaphragmatic breathing is considered essential. At St. Mary's Hospital the special hay fever clinic, which functions from March to July each year, has promoted the principle of self-inoculation with satisfactory results in the majority of cases. The demand for pollen continues to grow, and special reference is made to the work of Miss Noon, who collected during the season over 31 lb. of various grass pollens in addition to a large amount from rye and maize. In experiments at King's College the liberation of potassium observed in the intact animal after injection of adrenaline has now been demonstrated in the isolated liver. A quantitative relationship is shown between the amount of adrenaline injected and the amount of potassium liberated. It is thought that these observations may provide corroborative evidence of Professor Burn's view that the circulating blood of asthmatics contains a deficiency of adrenaline. Copies of the report are obtainable free from the secretary of the Asthma Research Council, c/o King's College, Strand, W.C.2. The council also publishes an illustrated pamphlet, *Physical Exercises for Asthma*, price 2s., post free.

SCARLET FEVER AT DONCASTER

An epidemic of scarlet fever in the county borough of Doncaster began on December 11th, and up to date 186 cases have been notified, with three deaths—one in a child aged 2 and two in women aged 38 and 48 respectively. The source of the epidemic has been traced to an infected milk supply, 148 cases and two of the deaths being directly associated with this supply, and illustrates once more the danger to the public of drinking milk which has been neither boiled nor pasteurized. For the following information we are indebted to Dr. Ralph Watson, medical officer of health for the county borough of Doncaster, and to Dr. Penman, medical officer of health for Doncaster rural district. On December 11th a child whose father was a dairyman was notified as a suspected case of scarlet fever. The dairyman called at the Public Health Office and gave the information that several of his customers were suffering from sore throats and that some had rashes. A house-to-house inquiry of the dairyman's customers subsequently showed that at least 100 persons had been suffering from tonsillitis of varying degrees of severity. On the same date (December 11th) seventeen further notifications of scarlet fever were received. It was discovered that the milk which had been supplied to the infected houses had in every case been obtained from one farm, the supply from which was immediately stopped pending further investigations. A visit to the farm revealed that one of the milkers had been suffering for a fortnight from a sore throat, from swabs of which cultures of haemolytic streptococci were grown. It was further found that one of the milker's children had had a running ear for over a fortnight, and haemolytic streptococci were isolated from the aural discharge. The child had been attending a school in which there were cases of scarlet fever towards the latter end of November, but she herself had never had a rash. Examination of samples of milk between December 11th and 14th did not disclose the presence of haemolytic streptococci. Instructions were issued on December 12th to all consumers to boil their milk, and arrangements for pasteurization were completed on December 16th. Approximately 60 per cent. of those infected were children, and about 70 per cent. of those suffering from clinical scarlet fever were moved to hospital. It would appear that in the majority of cases the onset occurred on the 10th, 11th, and 12th of December; there was a marked fall on the 13th, a further small rise on the 15th, 16th, and 17th, after which cases rapidly decreased.

LIFE WITHOUT BACTERIA

What part do bacteria play in the economy of the host? This question, which numerous observers have tried to answer, is of far-reaching importance. One way of approaching the problem is to find out whether it is possible to rear animals under conditions of complete asepsis. This has been done to a limited extent, and enough data have been collected to show that insects and certain cold-blooded animals can live and grow in the absence of bacteria. Mammals present a more difficult problem, and credit must be given to Nuttall and Thierfelder in 1895–6 for being the first to succeed in rearing a guinea-pig for eight days under sterile conditions. Success in this direction was also recorded by Cohendy and Wollman and by Küster in 1912. Since then little has been done. The problem, however, has now been taken up afresh in Sweden, where Dr. Gösta Glimstedt[1] of the University of Lund has carried out a very thorough and painstaking investigation into the growth and mortality of guinea-pigs reared under aseptic conditions. The animals were removed by Caesarean section and reared in an apparatus so constructed as to exclude the access of bacteria. They were not allowed, of course, to suckle their mothers, but were put immediately on to a carefully balanced diet which had been sterilized by heating in the autoclave on three successive days. To compensate for the destruction of vitamins, cod-liver oil, yeast extract, and lemon juice, all sterilized by filtration, were added. A number of animals were raised under these conditions, and among them three were reared for twenty-eight days, two for thirty-two days, and three for as long as sixty days. Compared with animals that were fed on a similar sterilized diet but not maintained in a bacteria-free environment the animals in the "sterile" group showed approximately the same mortality within the period of observation, but their increase in weight appeared to be rather less. Histological examination revealed a comparative failure of development of the lymphoid tissue, particularly of the glands normally

[1] *Bakterienfreie Meerschweinchen. Aufzucht, Lebensfähigkeit und Wachstum, Nebst Untersuchungen über das Lymphatische Gewebe.* Levin und Munksgaard—Ejnar Munksgaard, Köbenhavn. 1936.

draining the respiratory and intestinal tracts. Taken in conjunction with the loose unformed nature of the stools and the small size of the thymus, the author concludes that the animals must have suffered from a moderate degree of nutritional disturbance. The poor development of the lymphatic glands is referred to the absence of bacteria, which under normal conditions appear to be largely responsible for stimulating the development of lymphatic tissue. The author is guarded in his general conclusions, but there seems little doubt that, though bacteria are not essential for life and growth, their presence, particularly in the intestinal canal, is favourable to the nutrition and development of the host. In conclusion, the attention of laboratory workers may be drawn to the interesting data recorded in this monograph on the effect of dietetic, seasonal, and other factors on the growth and mortality of normal guinea-pigs.

CAFFEINE INTOXICATION

Every adult in these islands consumes on an average about 6 grains of caffeine a day, and it is somewhat remarkable that cases of caffeine intoxication are rarely encountered. There are few other drugs with a well-marked pharmacological action which could be taken with equal impunity in full therapeutic doses every day by nearly the whole population. Cases of caffeine intoxication due to chronic over-indulgence in tea or coffee do, however, occasionally occur. Powers[1] stated that he had observed thirty-six cases, and that the commonest symptoms were vertigo, headache, and nervousness; visual disturbances and insomnia were rarer. McManamy and Schube[2] describe a case in which acute intoxication was produced in a woman who took 60 grains of caffeine citrate in tablet form. She became delirious and was removed to hospital, and a few weeks after discharge she again took another huge dose of caffeine (75 grains), from which she also recovered. The patient, in addition to being highly emotionai, was also hypersensitive to many drugs and to proteins. The fact that a person could take two huge overdoses of caffeine within a month without suffering permanent injury is noteworthy, for it provides further evidence of the low toxicity of this drug.

CHRONIC CO POISONING

The signs and symptoms of acute poisoning by carbon monoxide are well known, but much less is known of the dangers of chronic intoxication by this gas. According to H. G. Beck[3] there is a definite clinical entity which can be recognized in patients who have been repeatedly subjected to sublethal doses of carbon monoxide at varying intervals over prolonged periods. Based on a series of nearly a hundred patients, Beck puts forward a somewhat complicated clinical picture. The source of the carbon monoxide was natural gas, illuminating gas, motor-car exhaust, and blast-furnace fumes, in that order of importance. The chief complaints were headache, giddiness, nervousness, muscular pains, digestive disturbances, dyspnoea, and palpitation. The headache was usually of a dull character felt in the frontal region and sometimes throbbing. One-third of the patients complained of weakness and unsteadiness in the legs, several having completely lost the use of these limbs. Feelings of depression, restlessness, anxiety, and fears were common, as was also vasomotor instability manifesting itself in morbid flushing, local sweating, cold extremities, and purplish congestion of the hands and feet. Muscular pains felt in the back, shoulders, abdomen, or chest, or even generalized throughout the body, were common. Among the digestive symptoms difficulty in swallowing, loss of appetite, and constipation were the usual manifestations. The symptoms arise predominantly from organs rich in blood supply, and appear to be due to a mild but definite degree of oxygen deprivation. Beck summarizes the existing pathological investigations which support this view. Usually the red cell count and the haemoglobin estimations are above normal, and there was clinically a tendency towards slowing of the pulse and lowering of the blood pressure. Once symptoms have developed they are very difficult to get rid of, suggesting that organic changes may rapidly occur when organs such as the heart or brain are kept chronically starved of oxygen. It follows that proper preventive measures are of great importance, and the solution of the problem is largely one for engineers.

[1] *Med. J. Rec.*, 1925, **121**, 745.
[2] *New Engl. J. Med.*, 1936, **215**, 616.
[3] *J. Amer. med. Ass.*, September 26th, 1936, p. 1025.

OESTROGENIC HORMONES AND THE NASAL MUCOSA

During the last twenty years or so the question of a naso-genital relationship has been rather neglected, but before this period the problem received a good deal of attention, mainly on the clinical side, without much light being thrown on the subject. In an illuminating paper on carefully controlled observations on monkeys Drs. H. Mortimer, R. Percy Wright, and Professor J. B. Collip[1] now revive this question. Their interest was first aroused by finding evidence of dyspituitarism in a family of nine children and both parents, all of whom suffered from atrophic rhinitis, and later in 80 per cent. of a moderately large series of cases of atrophic rhinitis. From these clinical observations they concluded that the constitutional factor in this disease may be related to pituitary function, and in view of the possibility that the anterior pituitary may exert an influence on the nose either directly or indirectly through the gonads by virtue of its gonadotropic hormone they have investigated first the effect of crystalline oestrogenic hormones on the monkey's nasal mucosa. Throughout the experiment independent examinations of the nasal mucosa by means of a nasal speculum were made weekly by one group of observers, and the condition of the sex-skin, face, nipples, and back, and the presence or absence of vaginal bleeding were recorded independently by a second group, all observers being ignorant of the treatment each animal was receiving. Examination of a control group of twelve untreated immature and adult female monkeys over a period of

[1] *Canad. med. Ass. J.*, November, 1936, p. 503.

several months revealed that there is a coincident increase in the degree of colour of the nasal mucosa and of activity in the sex-skin areas at intervals of about twenty-eight days, and that the peaks of nasal activity are chiefly premenstrual in time. It was found that such "nasal peaks" were 8 per cent. more regular as a manifestation of sexual activity than uterine bleeding, and that they were most marked in September and October, when conception is most likely to take place, and least in January and February. Fourteen immature and adult monkeys, three of which were males and four castrated females, were treated daily with varying doses of oestrogenic hormones (oestrone, oestriol, and emmenin). Positive responses, characterized by marked reddening of the nasal mucosa, were obtained after seven days in males and females, immature and castrated as well as adults, and there was an increase in the reaction after a further week's treatment. These changes were synchronous with those known to occur in the nipple, sex-skin, face, and back, and appeared to be definitely a specific response. The best responses were obtained in adolescent animals that had been previously untreated. Very immature animals did not respond so well, and in animals which had been mature for some considerable time the changes may have been masked by spontaneous coloration. Responses were not obtained in castrated females with pituitary gonadotropic hormone, but no mention is made of its effect in the intact animal. These experiments may open up a new field in the treatment with sex hormones of certain pathological conditions of the nose, and the subject is worthy of further investigation on clinical and experimental lines.

RHEUMATIC FEVER AND VITAMIN C DEFICIENCY

Since our last comment on the subject[1] still greater interest has been taken in the relation of vitamin C deficiency to rheumatic fever and to infections in general; an exhaustive review[2] of the present status of the clinical use of crystalline vitamin C (ascorbic or cevitamic acid) has been made by Irving Wright. The lowered urinary excretion of ascorbic acid recently reported by Abbasy, Gray Hill, and Harris[3] in rheumatic fever has been observed in a wide variety of infective conditions and is probably an index of an augmented metabolism of, and hence a greater requirement for, vitamin C on the part of the body. But the evidence that vitamin C subnutrition is an aetiological factor in rheumatic fever is no more firm than it was. On the experimental side the identity of the heart lesions described in animals by Rinehart and his colleagues with those of human rheumatic fever has still to be established. On the clinical side Sendroy and Schulz at the Rockefeller Hospital remain unconvinced that either saturation tests or the results of treatment indicate any specific relation between vitamin C and rheumatic fever. Wright and his colleagues have been unable to affect the course of rheumatic fever cycles even by massive doses of vitamin C. Warner and Winterton[4] have added another careful argument to the belief that subnutrition is a factor in the aetiology of rheumatic fever, but they found no evidence that vitamin C deficiency is specific. Abbasy, Gray Hill, and Harris are impressed by the fact that the low excretion of vitamin C continues even in convalescence in the case of rheumatic fever, whereas in surgical tuberculosis the urinary excretion returned to normal during convalescence. But the balance of evidence at present is against the view that vitamin C deficiency is an aetiological factor in rheumatic fever. A warning note has been sounded by Irving Wright on the rapidity with which ascorbic acid disappears when urine is allowed to stand. He found a loss of 30 per cent. in four hours even in the presence of glacial acetic acid.

[1] *British Medical Journal*, 1936, **1**, 269.
[2] *Amer. J. med. Sci.*, 1936, **192**, 719.
[3] *Lancet*, 1936, **2**, 1413.
[4] *Quart. J. Med*, 1935, **4**, 227.

SAMUEL JOHNSON AND JOHN HUNTER

The interesting literary method of "the dialogues of the dead," employed by Lucian in the second century A.D., by Fontenelle and by William King in the seventeenth century, George "the good" Lord Lyttelton in the eighteenth century, and by H. D. Traill in the nineteenth century, has seldom been employed in connexion with medical history. Attention may therefore be directed to an example of how successfully this can be done—namely, "A Meeting Which Never Took Place: A Play in Half an Act," by Dr. William B. Howell[5] of Montreal, who wrote a volume on *Canadian Medicine* in the Clio Medica Series. It is remarkable that the two great men—Samuel Johnson, who had so many medical attendants and friends, and John Hunter—never met. The scene in Dr. Howell's *jeu d'esprit* opens in the White Hart Tavern, Borough, on a December evening about 1780. Johnson has fallen asleep over a copy of the *Natural History of the Human Teeth* by Hunter, who, coming in, salutes the stranger, and picking up the volume which had dropped on the floor turns the conversation on to the subject-matter. Johnson, probably antagonized by Hunter's accent, dismisses it as a dull book on a dull subject, and refers to the author as a well-known surgeon, reputed to be an honest enough man, though an ignorant one. They then disagree about the value of the classical languages and education; Johnson criticizes the Scots and says of Hunter that "he is a dirty fellow: he stinks," and the other becomes so angry that he has an anginoid attack; Johnson gives first aid, and Hunter, recovering, thanks him, quotes from Johnson's *Vanity of Human Wishes* with approval, and after some further sparring they reveal their identity to each. Curtain.

[5] Howell, W. B. (1936). *Annals of Medical History*, New York, New Series, **8**, 541.

THE PATRON OF THE B.M.A.

The Keeper of the Privy Purse is commanded by the King to state that His Majesty is pleased to intimate to those societies and institutions which were recently granted patronage by King Edward VIII that they may continue to show the Sovereign as their Patron during the present reign, unless otherwise notified.

ENDOCRINES IN THEORY AND PRACTICE

This article is one of a series on Endocrinology contributed by invitation

THE PROBLEM OF ENDEMIC GOITRE

BY

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There are two types of endemic goitre, with many transitional forms between them, differing in their histological features, in their distribution, and in the constitutional states produced by or associated with them. It can hardly be doubted, so marked are these differences, that the two types differ also in their aetiology.

Two Types of Endemic Goitre

The first is the classical type prevalent in mountainous regions, such as the Alps and Himalayas, occurring as a colloid-poor diffuse *parenchymatous goitre* in childhood, and as an *adeno-parenchymatous*, nodular goitre, with its degenerative forms in adults. The second is the *diffuse colloid goitre* prevalent in lowland regions, such as the plains of Central Europe, and in England. The geographical limits of these two types are not clearly defined. Both may occur together in the same locality, but in general the former predominates in mountainous and the latter in lowland regions. The former is rarely associated with hyperthyroidism or Graves's disease; the latter is commonly associated with both. The former is usually associated with congenital goitre, cretinism, deaf-mutism, and various grades of physical and mental deterioration; the latter is rarely associated with these congenital manifestations of the disease. The former, in its adeno-parenchymatous form, increases in incidence as age advances, attaining to its acme between the ages of 50 and 60 years; the latter is more prevalent about the age of puberty, lessening rapidly or gradually disappearing after the age of 25 to 30 years. Both vary greatly in incidence in different localities. In regions of high endemicity the two sexes are affected in approximately equal proportions. In regions of low endemicity the incidence is higher in females.

The Parenchymatous Type

The parenchymatous type is a true hypertrophy of the gland; hence the name, *chronic hypertrophic goitre*, by which it is sometimes known. In this state of sustained hypertrophy the excretion of the gland's hormone tends to predominate over the secretion and storage of colloid, hyperplasia is pronounced, and many new vesicles are formed. Overstrain, or it may be toxic action on the gland itself, ultimately leads to fibrosis, with the appearance in the organ of circumscribed areas of more or less solid glandular tissue (adenomata), or of colloid-containing follicles (colloid adenomata), or of both. The gland is constantly straining to satisfy the needs of the tissues for its hormone, but just falling short of doing so; consequently evidence of hypothyroidism is often to be seen in sufferers from this type of goitre, hyperthyroidism rarely or never. In the pregnant female this sequence of events may result in failure of the maternal thyroid adequately to satisfy the needs of her own tissues and those of the developing foetus for the gland's products, especially when some additional burden (fright, worry, acute infections, or intestinal toxaemia) is placed on its resources. As a result the foetal thyroid is unduly stimulated and congenital goitre may arise in the offspring. Or the developing gland may be destroyed by overstrain and/or toxic action, with the production of cretinism. Such toxic action may be due to some unknown noxa or to poisons absorbed from the maternal intestine, as in the experimental production of cretinism (*vide infra*) by the oral administration throughout pregnancy of a watery extract of faecal material. The congenital manifestations of adeno-parenchymatous goitre are as much a feature of the endemic as the goitre itself.

Diffuse Colloid Type

The diffuse colloid type is one in which the whole gland is made up of follicles of diverse shapes and sizes, distended with, and distorted by, the accumulation of colloid within them. These follicles are lined with flattened epithelium, and evidence of antecedent epithelial hypertrophy and hyperplasia may or may not be present; usually it is. In normal circumstances the secretion of colloid with its storage in the follicles and the excretion of the gland's hormone—elaborated by special cells from the stored colloid—proceed in balanced adjustment one with the other. In diffuse colloid goitre some influence is at work which causes the former process to predominate over, or to outstrip, the latter. Following a period of hyperplasia and its cessation colloid may accumulate in the gland in large amount. This is the usual explanation of the diffuse colloid goitre; but it is not wholly satisfying. It presupposes alternating periods of iodine-want and iodine-supply—iodine being the outstanding substance which increases colloid storage. It appears probable that other factors may be concerned in causing the undue accumulation of colloid. One of these seems to be the excessive ingestion of calcium relative to iodine and/or phosphates, which has been shown to cause such accumulation in animals. The recent investigations of Stott (1933, 1934) and his collaborators in the United Provinces of India, where diffuse colloid goitre prevails, have again brought into prominence the importance of lime as a goitrogenic factor in that locality if not in others.

Colloid tends to accumulate in the gland when there is a deficiency of vitamin C in the diet, and this accumulation may result in the production of small goitres. In this condition the gland exhibits a tendency to diminution in alkalinity, suggesting that the accumulation of colloid may be related to concentration of H-ions within the organ. Finally, certain infections, as by organisms of the type of the bacillus of Koch, may cause colloid to accumulate in the gland (Thomas, 1935). These, then, are factors whose possible influence in determining the histological characters of goitre cannot be ignored, particularly as they may vary with locality and as variation in histological structure with locality is an outstanding characteristic of endemic goitre.

A Cause of Confusion

It would seem that some of the confusion in regard to the causation of endemic goitre may be due to the

failure to distinguish between these two types of the disease. A further source of confusion is the common practice of estimating the prevalence of goitre by surveys confined to school children. These surveys, conducted, as a rule, by visual methods of examination, clearly admit of many sources of error. It cannot be too insistently stated that unless some reliable index of the normal size of the thyroid gland is employed in making such surveys the incidence of goitre in school children may be greatly exaggerated, erroneous inferences may be drawn as to its cause, or its prevalence be proclaimed in localities where, in truth, it may be practically non-existent. Further, it is not generally recognized that during early life the thyroid gland normally grows more rapidly than the body as a whole and may exhibit this phenomenon as a visible swelling. Without a knowledge of this fact, and without some reliable means of measurement of the size of the gland (McCarrison and Madhava, 1932), physiological swellings may be mistaken for pathological enlargements. "If you can measure that of which you speak, you know something of your subject; but if you cannot measure it, your knowledge is meagre and unsatisfactory" (Kelvin).

Endemicity of Goitre

What determines the endemicity of goitre? In attempting to answer this question a distinction may be drawn between the cause or causes of the endemicity of goitre and the cause or causes of the incidence of goitre. Clearly the endemicity is determined by something that is definitely localized in the localities where goitre prevails. Up to the present time research has failed to reveal any *positive* agency to which the endemicity of the disease can be attributed. Of *negative* agencies the only one known to us, and likely to be so concerned, is deficiency of iodine in the soils, and in the foodstuffs produced upon them, of localities in which goitre prevails. McCarrison and Madhava (1932), as a result of their statistical study of all available data dealing with this question, came to the conclusion that "a low intake of iodine may, in certain circumstances of diet and hygiene, be a potent factor in predisposing to the occurrence of goitre, and may even be a determining cause of its endemicity." A low iodine-intake makes the operation of positive goitrogenic agents potentially possible; the first may determine its endemicity, the second its incidence.

It seems probable that in the attempt to establish an inverse relation between the iodine-content of soil, food, and water, and the incidence of goitre, we are again being led astray. There is no reason why such an inverse relation, though possible, should be invariable. For given a low-iodine intake the incidence of goitre will depend on the potency of the goitrogenic agents, or summation of agents, exercising their unhampered action in the absence of a sufficient intake of iodine to prevent it. There is nothing more certain in regard to goitre than that a sufficient intake of iodine, or more properly a sufficient absorption and utilization of iodine, does counteract the action of all goitrogenic agents at present known to us, with the exception of vitamin deficiency. In the absence of such agents a low intake of iodine may not, by itself, cause goitre, while their presence will result in its occurrence; and if they be present in exaggerated degree they may even overcome the anti-goitrogenic action of a relatively high intake of iodine. It becomes important, therefore, to know what these goitrogenic agents are and to continue the search for others. Even though future research may reveal the existence of a "goitre-noxa" to which both endemicity and incidence of the disease can be related, this noxa, too, is amenable to a high degree of control by the prophylactic use of iodine. In answer to the question above propounded it may therefore be said that, while there is much evidence connecting *the endemicity* of goitre with a low iodine-intake relative to goitrogenic agents, there is no sufficient evidence to justify the supposition that an inverse relation exists between *the incidence* of goitre and the amount of iodine available in a district.

Goitrogenic Agents

These are: (1) faulty diet; (2) chemical substances; (3) insanitary conditions; and (4) infections.

DIET

The more perfect the constitution of the diet the more normal the frequency distribution diagram of thyroid weights and sizes, the more stable the thyroid gland in point of size, and the less likely is goitre to arise. The faults in diet that may give rise to goitre in animals under experimental conditions, and presumably therefore in man, are: (A) Excesses of certain substances—fats, fatty acids, and lime. (B) Deficiency of certain substances—iodine, vitamin A, vitamin C, protein (in association with vitamin A deficiency), and phosphates (relative to an excess of lime). (C) Goitre-producing substances—cyanogen compounds—in certain foodstuffs such as cabbage. (D) Insufficiency of certain anti-goitrogenic substances, of unknown nature but other than iodine, present in certain fresh plants such as green grass, alfalfa, the expressed juice of steamed cabbage, and in sprouted legumes and carrots. All these faults can be remedied and their goitrogenic action counteracted by the use of a properly constituted diet containing adequate supplies of iodine.

Among foods rich, or comparatively rich, in iodine are those derived from the sea, eggs, goat's milk, lettuce, the outer leaves of cabbage, carrots; and, among condiments, ginger, black pepper, cumin, coriander, and cloves. Sophisticated cereal foods, pulses, tubers, root vegetables, meat, sugar, jam, etc., are, in general, relatively poor in iodine. The iodine-content of foodstuffs varies within wide limits in different localities. Thus that of green vegetables of different kinds may vary between 4 γ and 77 γ per kilo, that of cereals between 18 γ and 65 γ, that of pulses between 22 γ and 33 γ. The minimum requirement of iodine is said to be 45 γ daily for adults and 150 γ for children of school age; yet in the goitre-free locality of Coonoor, S. India, the average daily consumption of iodine by vegetarian schoolboys was found to be only 31 γ, or 11.3 milligrammes per annum, illustrating the fact that in the absence of positive goitrogenic agents a relatively low iodine consumption may not be associated with the occurrence of goitre.

CHEMICAL SUBSTANCES

Among those capable of causing goitre in animals under experimental conditions are calcium, boron, silica, tellurium, organic acids, amines (Pighini, 1933), and cyanides (Webster, 1933). The goitrogenic action of all these substances is annulled by the administration of iodine. The continued application of carcinogenic petroleum and shale oils or tars to the skin of mice causes thyroid enlargement in a proportion of them (Twort and Twort); it is preventable by the enrichment of the diet. Anterior pituitary gland extract causes marked thyroid hyperplasia when injected for a few days into healthy animals, thus indicating the close interrelation between the thyroid and pituitary glands. Cyanide appears to act in the production of goitre by depressing tissue oxidation, with con-

sequent demand for an increased production of thyroxine and for an increased supply of iodine to meet this increased production. How far these observations in animals have a bearing on the problem of endemic goitre in man is still unknown.

The view, expressed by Repin in 1908, that radio-activity in soils and waters of regions where endemic goitre prevails is a goitrogenic factor has lately been revived, though goitre is said to prevail in certain localities where no such radio-activity exists. But that is no reason why it should not exert a goitrogenic action in regions where it does exist. A re-examination of the question appears to be called for.

INSANITARY CONDITIONS

Insanitary conditions involving the contamination of the food and drinking-water by human and animal excreta is a potent goitrogenic agent in localities where the iodine content of the soil is low (McCarrison, 1917). In regions (Himalayas) where these conditions prevail endemic goitre and its congenital manifestations are rife. The incidence of the malady in its adeno-parenchymatous form has been found to increase in such localities with increasing impurity of the surface waters used for drinking purposes. Goitre has been produced, under experimental conditions, in man by the administration for some weeks of the residue left in the candle of a Berkefeld filter after filtration of this water. The substitution of a bacteriologically pure for an impure water supply has caused the disappearance of the disease. Animals confined in insanitary cages and fish confined in filthy tanks or ponds tend to develop goitre, which can be prevented by the additional provision of iodine. The scrapings from the interior of such tanks has been shown to cause goitre in animals when administered to them for some weeks.

Goitre in animals and congenital goitre and cretinism in their offspring have been produced, under experimental conditions, by the administration to them of extracts of faecal material or of bacterial cultures made from faeces. Thus a watery filtered extract of faeces when administered to female rats throughout pregnancy as their sole source of drinking-water caused cretinism in some of their offspring. A similar but sterile extract made from the excreta and food residues accumulating in cages wherein rats were confined caused great increase in the rate of growth of embryonic thyroid tissue *in vitro* when added to the culture medium in high dilution (1 in 500,000); when present therein in greater concentration (1 in 5,000) it inhibited thyroid growth. This extract when given to rats living under conditions of perfect hygiene and fed on a well-constituted diet induced goitre in 8.3 per cent. of the animals. When an ill-constituted diet, capable, *per se*, of causing goitre in 39 per cent. of the animals, was substituted for the well-constituted one, this extract increased the incidence of the disease to 89 per cent., thus emphasizing the importance of the summation of goitrogenic influences. The goitrogenic action of insanitary conditions is counteracted by well-constituted diets containing adequate supplies of iodine.

INFECTIONS

As is well known the thyroid gland is very susceptible to stimulation by infections of various kinds. Its usual mode of response to them is an increased activity, characterized by epithelial hyperplasia, an increased production and output of the gland's hormone, and a greater or lesser disappearance of colloid from the organ. But according to Thomas (1935) the gland sometimes exhibits another mode of response. In this case the process of secretion and storage of colloid may predominate over that of the excretion of hormone, and the histological features of the gland tend to approach those of diffuse colloid goitre. "If certain germs, like the bacillus of Koch, stimulate for a length of time the process of secretion [of colloid] in a dominant way, obliging the colloid to accumulate in the follicles and these to increase in size, we must admit a direct action on the thyroid; an action more or less specific on the part of certain microbes." This observation suggests an interesting possibility concerning the pathogenesis of goitre: "It becomes in these conditions extremely logical to look for the aetiology of colloid goitre, for example, in the action of a germ which, in the manner of the bacillus of Koch, stimulates [colloid] secretion in a predominant way but with a much more considerable intensity" (Thomas). In this connexion one may recall the experimental production of goitre in adult animals and of congenital goitre in their offspring by the oral administration to them of cultures of faecal bacteria and the curative effect of certain intestinal antiseptics (thymol, etc.) and of shock doses of vaccines in early cases of parenchymatous goitre in man (McCarrison, 1917).

Thomas's investigations have also thrown further light on the relation of intestinal toxaemia to the pathology of the thyroid gland—a relation the existence of which I have for many years maintained. He finds that intestinal toxaemia, surgically induced, has a profound action in at first stimulating the organ, but if long continued it induces pronounced atrophic and fibrotic changes.

Prophylaxis of Endemic Goitre

Within the last few years the value of iodine prophylaxis has been placed beyond question. The weekly administration to school children of tablets containing one milligramme of iodine has given excellent results in Switzerland. The efficacy of iodized kitchen salt, still under experimental investigation, opens up a wide range of possibilities of great promise. The dose of 0.5 gramme of potassium iodide to 100 kg. of salt appears sufficient, and is rarely followed by bad effects. But iodine prophylaxis has its limitations; always there is a residuum of goitre-incidence amounting to about 7 per cent. which it does not control (McCarrison and Madhava, 1932). Besides this specific means of preventing goitre it is essential to include in prophylactic measures the provision of a well-constituted diet containing all elements and complexes necessary for normal nutrition and to exclude all positive goitrogenic agents of whatever kind.

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J. Torgensen (*Norsk Mag. Laegevidensk.*, September, 1936, p. 951), who records two illustrative cases in children aged 8 and 9 years respectively, states that ischiopubic osteochondritis, which is an affection of the synchondrosis between the os pubis and ischium, was first described by Van Neck in 1925, and in greater detail by J. Heeren in 1933. It occurs in children in whom the synchondrosis is ossifying, and in several cases ossification is strikingly asymmetrical. The symptoms are pains in the lumbar region. *X* rays show a swelling of the synchondrosis, which is sclerotic at its margin and vacuolated in the centre. The condition probably predisposes to secondary infection.

THE NEW JOURNAL TYPOGRAPHY

PRINCIPLES UNDERLYING THE CHANGE

The article printed below gives a general account of the changes in type that have been made throughout the letterpress and title-page of the "British Medical Journal" under the guidance of Mr. Stanley Morison.

The typographical material from which the *Journal* is composed has been revised this week in accordance with a decision reached two years ago. The Journal Committee, having on many occasions received statements from members that the aspect of the *Journal* was dull and the type difficult to read, set up a subcommittee to consider the matter and to make recommendations which it thought desirable, and a second committee to render them practicable. Following its examination of the reports of the committees, the Council of the British Medical Association decided to take the necessary steps to bring the *Journal* into accord with modern habits of reading and modern standards of typography.

Revision from Cover to Cover

It was found that the plan authorized by the Council called for revision of the *Journal* from cover to cover. The revision has been thorough: types of a new and more legible design have been composed in rightly adjusted columns, surmounted by new heading types of related design, and the whole bound up within a stronger pair of covers.

The most striking change of all is that of the front cover, where the grey paper and the scarlet device present what are in fact the only revolutionary innovations. It is as well to admit that they, like all revolutionary changes, will be approved by some and disapproved by others. But it is surely fair to claim that those unprepared to abandon the Victorian gothic heading in the interest of consistency can hardly fail to approve another feature on the front cover which is one of convenience to each reader. The list of Principal Contents, now for the first time selected and displayed outside the body of the *Journal*, presents an immediate gain to all whose time is precious. The selection for reading of specific articles or features, and subsequent reference to them, is helped if it can be preceded by some general glance at the main contents. The new displayed Principal Contents, therefore, enables the reader to single out from other matter the subjects dealt with in original papers and special articles appearing in each week's issue. The full Table of Contents, now redesigned typographically, will be found in its usual place.

The Primary Purpose

Every other change throughout the *Journal* is similarly practical. The variations that have been made in the body of the *Journal* are structurally sound. They have been made in terms of practical and specific purpose, and related to one general purpose which any reader must applaud, without any reference to "matters of taste." This primary purpose was to make the *British Medical Journal* easier to read.

Any change in the outward appearance of a periodical requires justification in so far as it is noticeable, for the very purpose of adopting and retaining a particular style of typography is to prevent the reader from having to notice the physical details of each successive issue. He cannot immediately fix his attention on the new content while he is being distracted by changes, explained or unexplained, in the old form. Familiarity breeds contentment with the printed page so long as it is perfect familiarity. The most modest alteration of style or type is bound to be disconcerting, and the continuous making of piecemeal changes is the worst form of revision. Hence, when for sufficient reasons a considerable typographical change is determined upon, it is desirable to make the whole change at once.

Legibility and Comfort

It is claimed that the new type possesses greater legibility than the old. The word "legibility," like the word "edibility," has different meanings for different speakers. Both can be relative terms. The processes of mental ingestion depend on the reader's frame of mind. The actual muscular effort of the eyes in travelling to the right along a printed line requires, in favourable circumstances, no more conscious direction by the will than is required for mastication, and the final twitch of the eyes leftwards to the line below becomes almost as automatic as the act of swallowing.

Only the satirist would employ the word "edible" to describe a meal; and there is no point in applying the word "legible" to a printed page if it connotes merely that the page can be read. Anything written in the reader's language, in types which recognizably conform to the fixed code of the roman alphabet, not only can be, but will be, read if there is enough preliminary indication that its content is important to the reader.

When, therefore, readers complained, as they formerly did, about the printing of the *Journal*, they reported, first, their experience that although the type then in use was legible it was not comfortable. The printers may have found the types in previous use convenient to handle, and there may have been half a dozen reasons for continuing to use them. But complaining readers insisted, in the second place, that they were not able to read the columns of the *Journal* with the degree of comfort they found in other reviews.

Perceptibility of Type

And when the matter was looked into the Committee found, as was implied in readers' complaints against the old type, that the factor of legibility had indeed been subordinated to other considerations. In the new typography now before the reader the factor of legibility has not been subordinated to any other consideration whatsoever. It will be observed that the most obvious difference between the type previously used and the present is the colour. The new type is blacker. Before the question of legibility can even arise, a type must possess the virtue of *perceptibility*. In this matter the old type was at a disadvantage even in comparison with the fount used in the *Journal* of fifty years ago. The difference is accounted for by a change in the technical production. Whereas fifty years ago the *Journal* was produced on the same kind of printing press as is now ordinarily used for the printing of books, the paper has for many years been printed on much faster-running rotary presses in which, on account of the speed, the ink flow is much less liberal, the impression of the type into the paper much slighter, producing a letter-form comparatively lacking in clarity and colour and therefore perceptibility. The Committee rightly decided to use a blacker type.

The Letter-form

Secondly, it was decided that any new fount of type should have been designed and cut with a view to its

suitability for fast rotary printing. Another quality demanded from the new type was that it should be free from eccentricity. Immediate recognizability was insisted upon. There is nothing unfamiliar in the shapes of the letters now before the reader. The letter-form, being perceptible because it had the right weight, and clear because it had the virtue of plainness, needed also to be consistently drawn, cut, and composed before it could possess the crowning virtue of legibility. The width of the column of the *British Medical Journal*, just over three inches, has been consistent for thirty years. That measure is intimately related to the dimensions of the paper. As there seemed no good reason for changing either, the problem resolved itself into the provision of a fount of type yielding the optimum number of characters of sufficient weight and plainness to be accommodated comfortably into a column of the measure of the *British Medical Journal*.

The apparent increase in the size of the type is due to the fact that the new design utilizes its available area more efficiently. All the metal types in this line are of equal depth from top to bottom, but the majority of the letters (including the seven most frequently used, e, t, a, i, o, n, and s) cannot occupy that total depth, for space must be allowed for what the printer calls the "ascending" letters of the fount, so that l, k, b, d, and f may have room in which to distinguish themselves from i, x, o, and r; and allowance must also be made for the tails of p, q, y, and other "descending" letters. If, however, this allowance is kept to a safe minimum, the gain in apparent size is remarkable.

The new design was created only a few years ago by and for the *Times*, and the fact that it has been made generally available enables the printing trade to share in the benefits which that newspaper might well have reserved to itself in view of the expense of cutting and recutting the new letter with constant reference not only to the laws of legibility, but also to the physical circumstances of printing, variations in lighting, etc. Such tests made it possible for the *British Medical Journal* to do no more than verify, by independent experiment, that no other available design would have such particular suitability for its own columns. What remained after that primary choice was to prepare trial pages by which different effects of line-spacing, the differential treatment of headings and subheadings, and the effect of different paper surfaces could be compared.

Print and the Reader's Mind

There is no page in this week's issue of the *Journal* which can be recognized automatically as a familiar object before it is read. But next week's will be recognizable in every typographical respect; and, through subsequent numbers, the successive recognitions will enable the printed pages to achieve that "transparency" which it is the aim of reasoned typographic design to achieve.

Hence, when the moment arrives, as it will after the publication of less than a month's issues of the *Journal*, that the reader notices (as it were) that he has stopped noticing anything between himself and the sense of the words, lines, and paragraphs, that will be the time for him to compare the new with the old typography. It will then be evident that the duty of the *British Medical Journal* to its readers—the dissemination of current medical knowledge—has been assisted by its production in accordance with the findings of modern typographical research.

BIBLIOGRAPHICAL REFERENCES

A NOTE FOR CONTRIBUTORS TO THE B.M.J.

Starting with this issue (January 2nd, 1937) the *British Medical Journal* is adopting the Harvard system of giving references to scientific literature, and is using the abbreviations of scientific periodicals which are included in the *World List*. This system, which has been slightly modified, is as follows:

References in the Text

1. Numbered references in the text are not used, although with an exceptionally long list of references this rule might be relaxed.

2. Instead of a "superior numeral" the author's name and the date of the publication are given in brackets.

EXAMPLE A

Old style = It has been said[1] that coma in heart disease is rare.

Harvard system = It has been said (Jones, 1935) that coma in heart disease is rare.

EXAMPLE B

Old style = Dale and Dudley[2] isolated acetylcholine from animal tissues.

Harvard system = Dale and Dudley (1929) isolated acetylcholine from animal tissues.

In other words, when the author's name is part of the sentence only the year of the publication referred to is to be in brackets. When more than one paper by the same author is published in any one year each paper should be distinguished by a small letter—a, b, etc.—placed after the date—for example, (Brown, 1935a).

References at End of Paper

1. These references are not numbered, with the possible exception of a long list of references.

2. Authors' names are arranged in alphabetical order.

3. The year of publication is given in brackets after the author's name.

4. The title of the periodical is printed in italics and abbreviated in accordance with the *World List of Scientific Periodicals*.

5. The volume number is printed in Arabic numerals in bold-face type; this is followed by the first page number of the paper quoted.

6. When the title of a book is referred to the name of the publisher, the place of publication and number and date of the edition should be given when possible.

7. When an author's name is repeated in the list of references a short line represents the repeated name.

EXAMPLE

"In contrast to these results O'Brien (1932) and Yudkin (1933) report that cataracts only occur in rats deprived of vitamin B_2 at an early age and not in older animals, while in this country Bourne and Pyke (1935) carefully repeated the work of Day and Langston (1933) and obtained an incidence of cataract of only 31 per cent. . . . Bourne and Young (1934) have made a discovery of great importance in showing that in rabbits naphthalene is conjugated with cystine. . . ."

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HEALTH OF THE SCHOOL CHILD

CHIEF MEDICAL OFFICER'S REPORT*

Sir Arthur MacNalty, in his annual report as Chief Medical Officer of the Board of Education for 1935, says that that year was eventful in the study of the nutrition of school children. In May a new Advisory Committee on Nutrition was set up, and the League of Nations published two important reports: *Nutrition and Public Health,* and *The Physiological Bases of Nutrition.* These events increased the already great public interest in the subject, and reinforced the demand that public health should be attuned to the influence of the remarkable recent advances in the science of nutrition. The year 1935 was also the first complete year of the Milk Scheme, the largest experiment in supplementary school feeding the world has yet seen. It was the first year in which the method of classifying the nutrition of children into four classes by clinical assessment was generally applied in all areas. The reports of school medical officers throughout the country do not suggest that the nutrition of school children has deteriorated. There may, however, be a question whether the progress has been as satisfactory as might have been; undernourishment almost undoubtedly exists in certain areas where severe depression continued over many years has left its mark.

Statistical Returns

The new method by which school medical officers estimate and record malnutrition continues to group children into four classes, but these have been altered to meet the much higher general level of nutrition which now exists compared with the level in 1908. The categories are excellent, normal, slightly subnormal, and bad, and the classification is made on clinical grounds and not on height and weight in relation to age. During 1935 the nutrition of 1,687,331 children examined at routine medical inspections was classified on the new basis. In 14.6 per cent. the nutrition was assessed "excellent"; in 74.1 per cent. "normal"; in 10.6 per cent. "slightly subnormal"; and in 0.7 per cent. "bad." The Chief Medical Officer points out that nutrition means the general well-being of the child, which depends on many other factors besides food—for example, adequate sleep, proper housing, sunlight, fresh air, exercise, and even happiness. Therefore it must not be directly inferred that 11.3 per cent. of the children are underfed or improperly fed. In any unselected school population, however well fed, there will always be about 4 per cent. which, from a variety of causes, will appear subnormal in nutrition. The 8-year-old children make the poorest showing and the 12-year-olds the best, except for the small group of still older "leavers."

No comparison with previous returns is possible, for the basis of classification is different. The contrasted figures may, however, seem to suggest some increase in malnutrition, and the question naturally arises whether this apparent increase is due (1) entirely to the new method of assessment, (2) to a greater attention to nutrition, or (3) to a real increase in subnormal nutrition. In London, however, close attention has been paid to the clinical classification of nutrition and the statistics have been drawn up for many years in four categories, so that those of the present and previous years are fairly comparable. The report of Sir Frederick Menzies, from which Sir Arthur MacNalty quotes freely, indicates clearly that there has in fact been no deterioration in the children's general nutrition.

On the whole the change in the method of assessment has been well received by school medical officers. The new method was introduced in the hope of attaining some concept of the state of nutrition of school children in the country as a whole, and of making the returns of the different areas more comparable. The Chief Medical Officer thinks it probable that some success has been attained in the first aim, but success in the second is more doubtful. He concludes tentatively, after considering all the returns, that comparability is obviously still imperfect, but that some improvement has been effected and more will be attained in future. The composite picture given by the total returns is probably near the truth, and the returns of the larger areas may be less true. Children in London and the South show a higher average level of nutrition than those in the industrial cities of the Midlands, and a higher level still than those in the North of England and South Wales. Though great divergencies are seen in the returns from the depressed areas, they show a greater incidence of subnormal and bad nutrition than in other parts of the country. There seems, however, to have been little deterioration, even in these areas.

The Milk-in-Schools Scheme

School medical officers all over the country attach great importance to the provision of milk for growing children, not only for those suffering from subnormal nutrition but also for normal children whose diet would ordinarily be regarded as satisfactory. On the other hand, the scheme seems to leave a certain group of children unprovided for. In some rural areas the county medical officer cannot approve the only available supply of milk, and in some small and remote schools it is difficult to find distributors who will supply milk for the allowance available. It is, however, probable that over 90 per cent. of the school population are attending schools where they have an opportunity of buying milk at the reduced price. The main problem is therefore not the absence of facilities but the failure of a large proportion of children to take advantage of them.

Physical Education

The Chief Medical Officer rightly regards nutrition as his most important problem, for physical training is of little value to an undernourished body. After dealing with nutrition, however, he lays great stress on physical training and its co-ordination with mental training—the educative co-ordination of mind and body. The national system of education, he says, must ensure that the body is trained to proper condition through physical exercises, gymnastics, organized games, athletics, swimming, and dancing. The Board of Education's circular on physical education issued early this year laid down a general policy of health and physical education founded on free physical exercises up to the age of 11 years, and physical exercises and gymnastics for children and young people above that age. Rightly conducted these are the best possible foundation for games and athletics. Movement, variety, and enjoyment should be their keynote, and they must therefore be in the hands of skilled teachers. Gymnastics, owing to lack of suitable accommodation and equipment, has hitherto played only a small part, and teachers of gymnastics have therefore not been available in large numbers. This need will be provided through advanced courses in the normal training colleges, through an increase in the number of courses providing at least a year's specialized training, through intensive courses of shorter duration, and through short courses of various kinds. The Board also contemplates an increase in the provision of gymnasia and equipment and of suitable playgrounds and playing fields. It regards physical education as an essential part of education and not merely as one more subject to be squeezed into or out of the curriculum.

The movement for a more thorough organization of physical education has received further impetus from the publication of the report of the Physical Education Committee of the B.M.A. Sir Arthur MacNalty describes this report as a comprehensive and valuable survey of the whole field of physical education, which powerfully re-

* The Health of the School Child. Annual Report of the Chief Medical Officer of the Board of Education for the Year 1935. London: H.M. Stationery Office. (2s. 6d. net.)

inforces the views expressed by the Board in their circular and will for years to come help to shape the course and to guide the activities of all those who are interested in physical education. The Chief Medical Officer's report deals fully with research, organization, the training of teachers, and physical education in various types of schools, including the special schools for mentally and physically defective children. The Board also lays stress on rhythm and dance as a training in harmony of body, mind, and spirit.

During the past year the number of public demonstrations of physical training organized by local education authorities increased. They were attended by large numbers of people and gave parents and others a clearer understanding of what physical training means and of its influence on children and adolescents. As a result parents have more willingly co-operated with the school authorities in order to make the training effective. Another important advantage is that teachers in public elementary schools and leaders in boys' and girls' clubs who have not had recent special training and have not attended refresher courses can learn much from a well-arranged demonstration.

Routine Medical Inspection

In recent years there has been much speculation and discussion among school medical officers on the possibility of improving the system of inspection, and the Chief Medical Officer quotes at length from papers by Dr. H. L. Cronk[1] (Hampshire), Dr. Henry Herd[2] (Manchester), and Dr. G. A. Auden (Birmingham).

All these officers and many others hold the view that the three routine medical inspections carried out during the life of every public elementary school child should be reduced in number and some other type of medical supervision substituted. Many medical officers, however, feel that the present system is not unsatisfactory, and that any improvement should be effected by increasing rather than decreasing the number of routine age groups to be inspected. Others hold that the present system ought to be supplemented by measures designed to remedy the weakness which allows intervals of several years between consecutive inspections. There seems to be universal agreement that the routine medical inspection of all entrants must continue for the present, and few would be found to advocate that inspection of "leavers" should be completely abolished. Reformers are agreed on the necessity of frequent and periodic weighing and measuring of all the children.

One of the most successful innovations of the century has been the nursery school movement, and the Chief Medical Officer devotes a chapter to showing the beneficial effects it has had on the mind and body of the child, upon parental responsibility and interest, upon the methods employed in infant schools, and upon the home conditions, especially where an overworked mother whose children are taken off her hands has time to keep abreast of her household duties. The past year has seen many programmes of reform in the education and health of the child under 5 years. The recent Circular 1444, urging all local education authorities to estimate the number of children who should be encouraged to attend school before the age of 5, has already brought an increase in the number of schemes for nursery schools or nursery classes. Voluntary effort is most valuable in some areas, particularly where unemployment is rife and housing conditions are bad. Work for young children in laying out a nursery school garden, repairing toys, or making some of the furniture for a nursery school, often carried out by unemployed parents, has been most helpful to the teachers, and has resulted in greater peace at home. Nursery schools should be provided on new housing estates, especially where social conditions are unduly poor, many of the married women are employed, or the gardens are unfenced and there is danger from traffic.

Sir Arthur MacNalty gives interesting details about the growth of the orthopaedic service and recapitulates the essentials of an orthopaedic scheme. The recent recrudescence of mortality from acute rheumatism seems now to have abated, but the disease has strong claims on the special attention of the school medical service, for the second half of school life is the time of its greatest incidence and mortality. In 1934 acute rheumatic infection was responsible for 16 per cent. of all deaths between 10 and 15. A synopsis of a complete rheumatism scheme is the subject of a special chapter. The report also contains a valuable essay on the examination of children suspected of mental deficiency, founded on the experience of officers of the Board.

[1] *Publ. Hlth.*, 1935, **48**, 253.
[2] *J. roy. san. Inst.*, 1935, **56**, 103.

INTERNATIONAL HOSPITAL CONGRESS
PARIS, JULY, 1937

The next International Hospital Congress will be held in Paris from July 6th to 11th, 1937, in the Arts and Professions Building, 9 bis, Avenue d'Iena, close to the World Exhibition which is taking place in Paris next summer. An influential organizing committee has been formed under the patronage of the French Minister of Health, and the services of M. Albert Chenevier, secretary of the Public Assistance Administration in Paris, have been secured as honorary secretary of the Congress. Dr. René Sand, Dr. W. Alter, and M. Sarraz-Bournet have consented to act with the committee on behalf of the International Hospital Association.

A varied programme of lectures and discussions has been prepared, including French, German, Italian, and English speakers, on the national planning of hospital services. Other subjects to be dealt with are: (1) hospital visiting; (2) the rights of the hospital in regard to case histories of patients; (3) general nursing problems; (4) hospital finance and publicity; (5) the hospitalization of mental cases.

Arrangements for Visits

Arrangements are being made to organize a visit of several days' duration to the Lyons district for the week immediately preceding the Congress. The hospitals of Lyons, the sanatoria of the Alps, and the hospices of Beaune would be among those visited. An alternative tour in another part of France is also under consideration. With a graceful gesture the regional hospital unions composing the French Hospital Federation have indicated their wish to provide official receptions for foreign delegates at the frontier towns through which they will enter France to attend the Congress in order that they may receive a welcome as soon as they set foot on French soil. This courtesy is a token of the thought and consideration which are being given by the Federation to all the arrangements it is making for the comfort and interest of the delegates. During the Congress provision will be made for afternoon visits of two kinds, one, of a technical nature, to large hospitals, the cancer hospital at Villejuif, etc., and the other of a sight-seeing nature, mainly for the benefit of those who accompany the members of the Congress but are not themselves hospital workers. After the Congress it is hoped to arrange for one-day visits from Paris and back again to parts of France within easy distance of the capital (Rheims, the wine vaults of Champagne, etc.).

Owing to the present variable state of the exchange it has not been possible yet to fix the fee for attending the Congress, but 100 francs has been suggested. This would entitle visitors to a very considerable concession in fares on all French railways during a period of three months, and probably also to free entrance into the Paris World Exhibition.

A good attendance at the Congress is expected from America, and tentative arrangements have already been made with French steamship lines to run special itineraries which will give oversea visitors an opportunity of seeing other parts of France and Europe. A warm welcome will be given to any delegates who pass through the United Kingdom on their

way to Paris, and arrangements will gladly be made for them to visit hospitals and places of interest if they care to notify the place and date of their arrival to the general secretary of the International Hospital Association, Mr. Sydney Lamb, 87, Lord Street, Liverpool, 2.

STILLBIRTHS AND NEONATAL MORTALITY

[FROM A MEDICAL CORRESPONDENT IN BERLIN]

A Viennese physician and statistician, S. Peller, has recently devoted an interesting work to the subject, "Death in Child Birth" (*Der Geburtstod—Mutter und Kind*—publishers, Franz Deuticke, Vienna, 1936). Neonatal mortality as defined by Peller is the mortality of the first week of life, and he again subdivides it into mortality of first, second, etc., days. He does not, however, content himself with a study of neonatal mortality, but brings into consideration stillbirths, which approximate to about 3 per cent. of live births, which, when infant mortality in most civilized countries is not more than 4 to 10 per cent. of live births, is a substantial number. Peller's studies are of special importance because his careful analysis suggests how stillbirths and neonatal mortality, which so far has had hardly any share in the reduction of infant mortality, may possibly be decreased. The importance of this is evident. It cannot be without interest to consider "whether of a million born some seventy thousand or only ten to fifteen thousand should perish on the threshold of life." Peller reaches the conclusion that the stillbirth and neonatal rates, which together destroy from 6 to 8 per cent. of all births, even in the countries where infant mortality is at a minimum, are not reducible by medical or therapeutic means.

Some Viennese Figures

Even the increase of lying-in homes since the war and better gynaecological technique have been without effect; but, on the other hand, Peller produces Viennese statistics to the effect that the care of the mother during pregnancy, her relief from the necessity of industrial or household work, is of the greatest importance. In Vienna there has long existed the Institution Des Schwangereninternates, which, originally a charitable foundation of the eighteenth century dealing with unmarried women, has later, with the increase of institutionalism, received many married women. The children of those admitted some weeks before the confinement (designated in the table below as Hausschwangere) have much lower stillbirth and neonatal mortality rates than other women, whether the pregnancies are legitimate or illegitimate. For every 100 births in the undermentioned groups the percentages are as follows:

Vienna 1927–9: Mortality (Total Stillbirths plus Mortality First Week of Life)

	Illegitimate Children	Legitimate Children
Hausschwangere	3.9	2.6
Nichthausschwangere ..	10.2	8.8

The contrast is very striking, and the relative improvement in both groups of civil states is about the same. Children of the Hausschwangere on the average are taller and heavier at birth than the children of the Nichthausschwangere, who before their confinement have continued in their unfavourable social environment. Hence the conclusion is suggested that this great difference depends in the first place on better physical development. "Neither in that paradise for infants, New Zealand, nor in Australia, nor in Holland, nor in Sweden, can the sum of stillbirths and neonatal deaths be brought below 3.2 per cent. for illegitimate and 1.6 per cent. for legitimate births." It would seem that neither civil condition, race, constitution, nor relative increase in the number of first-born is a decisive factor.

None of the unfavourable factors seem to be of such importance as not to be overcome by providing for pregnant woman a release from unfavourable environmental conditions some weeks before delivery. Peller holds that to demand that the stillbirth rate should be less than 1 per cent. and neonatal mortality less than 0.5 per cent. is not Utopian. The way to reach this result is not more obscure, indeed he thinks it is less obscure, than the path leading to the reduction of later infant mortality to 2 to 3 per cent. This way lies through the erection of institutions for the reception of the majority of pregnant women, and, of course, it raises financial questions. But even should this path prove closed a recognition of the real factors of mortality may lead in other ways to improvement.

Maternal Mortality in Germany

Peller also considers the question of maternal mortality. Although the rate of mortality of women in most age groups is lower than that for men, in the age of reproduction this had in the past not been the case in German experience. But in the latest German life table, based on the three years 1932–4, a change has occurred, inasmuch as for ages 30–35 and 35–40, which in the 1924-6 table showed a higher mortality for women, now show a lower mortality. One would be inclined to attribute this to a decrease of birth rate. Unfortunately the reasons why a number of women perish are not clear. The absolute number may not be large, but one has to recall our uncertain information respecting abortions, possibly one of the main problems of maternal mortality. Peller estimates that in Berlin, 1922–5, 1,041 deaths were attributed to the sequelae of normal pregnancy and labour, 1,827 to effects of abortion; in 1926–9 the corresponding numbers are 971 and 922, with approximately equal number of births in the two periods. Abortions, therefore, claimed a particularly large number of victims in the years following the war, and fell by approximately half in the second period, while mortality following birth at term changed very little, from 5.8 to 5.3 per 1,000 births.

These specific components of maternal mortality naturally vary in different countries. It has to be borne in mind that the Berlin practice of distinguishing between deaths due to normal pregnancy and abortion is not universal. According to Peller, in Paris in 1925–8 the maternal mortality was 3.9 per 1,000; in Vienna in 1925–9 6.8; and in Budapest, 1925–8, 7.5. It is rather remarkable that in Leningrad and Moscow the rates are lower than in all other great cities. Peller suggests that the differences may reflect different attitudes of gynaecologists towards medical indications for terminating pregnancies, and explains in this way a lower rate of maternal mortality in London than in other European capitals.

M. Chiray, G. Albot, and M. Deparis (*Paris méd.*, May 16th, 1936, p. 423) state that the clinical symptoms of tuberculous hepatitis are often confusing and misleading. When tuberculosis invades the digestive tract or peritoneal serosae the galactosuric concentrations reveal the presence or absence of a fatty or follicular tuberculous hepatitis, and are an important prognostic sign. A persistently high galactosuria is an early indication of a degenerative tuberculosis of the liver, a condition which sometimes complicates and aggravates certain pulmonary, genital, and other forms of tuberculosis. Three cases are described which demonstrate the value of this test.

E. Wehefritz and E. Gierhake (*Zbl. Gynäk.*, November 14th, 1936, p. 2711) found a marked increase of uterine hypoplasia during the last five years. Whereas before the war uterine hypoplasia was found in about 1 per cent. of cases, the percentage went up to 2 in 1931 and to 3.3 in 1935. The increase of the proportion of uterine hypoplasia was particularly pronounced in women born during the war. The authors explain this increase by the quantitative and qualitative deficiencies of the nutrition during the war years, particularly in vitamins A and E. The developmental injury remained latent during childhood, but became apparent in the adult.

Reports of Societies

FREQUENCY OF MICTURITION IN THE ADULT

At a meeting of the Hunterian Society held on December 14th, 1936, with Mr. H. L. ATTWATER in the chair, the subject for discussion was "Frequency of Micturition in the Adult."

Mr. ALEX. E. ROCHE said that the function of the bladder was to convert a continuous secretion into a discontinuous excretion. With complete failure of this pump-like mechanism the urine escaped at once in a constant dribble, as in distension overflow. A lesser but commoner degree of bladder failure caused the urine to be expelled, not constantly, but much more frequently than usual. This might interfere with intellectual and other activities, and even undermine health by impairing sleep. Although male and female bladders were the same in size the female had the greater tolerance, perhaps an adaptation to meet the pressure of pregnancy. In assessing the value of the symptom of frequency it was necessary to ask about the patient's usual habit; for example, in a male of 50 or over two or three nocturnal micturitions were of little importance if nocturnal micturition was a lifelong habit, but if of recent origin they were a symptom of prostate trouble. Excessive frequency was due mainly to polyuria or to decreased bladder capacity, or both. Polyuria might be due either to diuretics, including water, or to inability of the kidneys to secrete urine of normal concentration, the urine being thus of constantly low specific gravity. Decreased bladder capacity might be organic or functional. The former included external pressure by pelvic swellings such as ovarian cyst, loss of distensibility due to muscular hypertrophy, fibrotic contraction, or infiltration of new growths, and partial occupation of the bladder by stones, growths, ureterocele, or a constant pool of residual urine. Functional decrease of bladder capacity resulted from something ingested or contained in the urine, from inflammation of the bladder itself or of neighbouring glands, or from reflex and other nervous influences. It was not sufficiently realized that increased frequency might be renal in origin. One authority (Kidd) had said that increased frequency was a sign *par excellence* of a diseased kidney rather than of a diseased bladder. Insidious and progressive increased frequency was usually the first symptom of renal tuberculosis. In bladder growths the first symptom was usually painless haematuria, but in the cystitic type of carcinoma there was usually frequency and pain. In papillomas of the bladder the urine was usually clear and frequency normal. After touching on the various and careful investigations necessary, Mr. Roche ended with a word or two on the subject of treatment, which, he said, must be governed by the cause. He mentioned the value of instillations and washes with weak silver nitrate, and among drugs tincture of belladonna and sandalwood oil.

Neurological Aspects

Dr. D. E. DENNY-BROWN said that to the neurologist cases of frequency arising from functional causes were much more common than those arising from organic. It was very common in neurosis to find the patients complaining of lack of power of concentration. These were the people in whom disturbance or frequency of micturition was found. They were people in whom various processes ordinarily subconscious emerged too soon into consciousness. These were cases of a normal bladder which was giving rise to an abnormal sensation—the people were conscious of a desire for micturition and suffered from frequency. Many people had frequency all their lives. Some had such frequency that any sudden effort was liable to bring about some micturition. Some had nocturnal enuresis which was constant, invariable, and lifelong. These people on examination were found to have an abnormally reactive bladder, usually a small bladder, though he did not think that was important, and they were quite unable to inhibit or suppress the contractions of the bladder at a volume of some 300 or 400 c.cm., or about half the volume which became urgent in the normal person. He did not think the capacity of the bladder mattered very greatly. There was a great variation in capacity, but it was secondary to a variation in degree of ability to control micturition. With regard to nervous disturbances of micturition arising from organic causes, a common cause was chronic syphilitic meningitis. All these were disturbances of frequency of efficient micturition, but there was also frequency of inefficient micturition. Such a patient always complained of difficulty in beginning micturition, though he would also say that he felt impelled more often than usual to attempt to pass water. These were states of partial retention and resulted from impairment of the connexions between the spinal cord and the vesical plexus.

Dr. J. C. AINSWORTH-DAVIS agreed with Mr. Roche that it was unpardonable to prescribe until a complete urological examination had been carried out. Often the frequency was merely a symptom of a serious underlying cause, which might be curable in its early stages. A condition which caused frequency in women was chronic cervicitis, a condition not taken seriously enough by gynaecologists. There was no doubt that if the chronic cervicitis were efficiently treated the frequency would clear up. Ordinary douching and local applications were helpful up to a point, but a more thorough treatment by means of diathermy, using the coagulating current, was indicated.

In the course of some further discussion, Mr. A. E. PORRITT described a physiological experiment undertaken under standardized conditions the result of which appeared to suggest that the build of the person had some definite relation to the frequency of micturition. In a group of twelve men who figured in this experiment those who had the most urgent desire to micturate after a considerable period of retention were the small people, and in these also the volume of urine was easily the greatest. The deduction was drawn that body surface area had some relation to the rate of production of urine.

INDUSTRIAL DISEASE

At a meeting of the Manchester Medical Society on December 2nd, 1936, Dr. R. E. LANE opened a discussion on industrial diseases. Defining an occupational disease as one arising from and peculiar to a given industry, he gave a practical classification of these conditions.

Dr. Lane emphasized the importance of the respiratory tract as a portal of entry for industrial poisons. He described the difference between the toxicity of a substance *per se* and the extent to which it constituted a health hazard in industry. The former was largely dependent on the chemical nature of the compound, whereas the danger to health in industry was to a great degree determined by the physical properties of the compounds handled. The ease of absorption was a vital point in most industrial poisonings. In the motor-body-building industry, for example, lead poisoning had followed the inhalation of fine particles of metallic lead. The importance of the physical state of the poisonous substance was illustrated by metal-fume fever, in which the attack was only brought on by the inhalation of metal fume in a very fine state of subdivision and dispersion. If the same fume were allowed to stand for a short time before inhalation fever no longer occurred, because a clumping of the very fine particles had taken place, although, of course, the chemical nature of the fume had not altered. Finally, Dr. Lane stressed the importance of collaboration between medical and other technical experts, and suggested that it was essential for the medical profession to be ready with accurate knowledge when consulted by the employer, who must be held responsible for the health of his workpeople.

Need for Research

Dr. M. W. GOLDBLATT referred to the general ignorance of the effects of industrial products on the worker. Attention was drawn to the dangers often only after calamities had occurred. The necessity of systematic research in industrial medicine could not be too strongly emphasized. The problem of the worker with some obscure and unsuspected idiosyncrasy might appear acutely at any time, even when the main facts about a given product might have led to the belief that no harmful effects were to be expected. Criteria for the detection of susceptible subjects, particularly in regard to skin hazards, should be worked out, and such workers allocated to employment remote from exposure to the, for them, hazardous products. It was not sufficient to conclude that a man was suffering from an industrial disease because he presented a symptom of a condition which might arise from his work. It was similarly unwise for the dermatologist to conclude that a skin irritation was due to a dyed garment because on previous occasions he had come across cases attributed to this dye. This was so because the same name often referred to dyes of very different composition, and unless the dermatologist discovered the precise composition of the particular product involved he was likely to be misled. Describing some of the practical difficulties of carrying out investigations in industry, Dr. Goldblatt said that the co-operation of managements and workmen could not be obtained unless the investigation did not interfere with production on the one hand and the morale of the workmen on the other. The worker, already more than a little suspicious of medical service in industry, had to be handled with extreme care if useful results were to be secured. In certain industrial conditions routine blood, urine, and *x*-ray examinations had to be performed on the workers, and the difficulty of organization and administration of schemes to effect these was not readily realized by medical men whose experience was limited to hospital or private practice.

Dr. DAVIDSON referred to old and new risks in old industrial methods, the new risks following new uses of old poisons, and the dangers of new industrial processes. Mr. H. HEAP indicated how modern views on lead poisoning were being influenced by newer and more accurate methods of chemical analysis, and the need for estimating the many mineral elements that were normally found in the body.

OESOPHAGEAL SURGERY

At a meeting of the Royal Medico-Chirurgical Society of Glasgow on December 4th, 1936, with the president, Mr. G. H. EDINGTON, in the chair, Professor GREY TURNER gave a talk on oesophageal surgery, which was illustrated by lantern slides. It was only possible, he said, to deal with some few aspects of the surgery of this out-of-the-way part of the body.

Professor Grey Turner first referred to examples of achalasia or cardiospasm which had resisted treatment by dilatation, and in which the patients were getting steadily worse. He suggested that this condition was found in three stages: (1) when it was simply a matter of neuromuscular imbalance; (2) later, when there was some superadded inflammatory trouble; and (3) still later, when inflammatory trouble had led to fibrosis producing an ordinary cicatricial narrowing. He gave particulars of cases, probably belonging to Group 1, in which he had merely mobilized the lower end of the oesophagus and in which the patients had been very greatly relieved, although they still suffered occasionally from quickly passing attacks of what they called spasm. On that account it would probably be better to combine with operative intervention the denervation of the lower end of the oesophagus, as advocated by Mr. Knight. In the cases which had gone on to a later stage improvement often followed gastrostomy, but of course that could never be allowed to be permanent, and he had made an anastomosis between the oesophagus and the cardiac end of the stomach in a series of cases with lasting good results.

Cardioplasty

In the third group, where there was definite cicatricial narrowing of the lower end, a plastic operation of the nature of cardioplasty had also proved most effective. Professor Grey Turner then spoke of the treatment of cases of simple cicatricial stricture in the middle of the oesophagus, which usually followed the swallowing of some corrosive poison. He had dealt with six of these cases in which treatment by intermittent dilatation, often carried out by experts under oesophagoscopy, had not succeeded in bringing about lasting relief. In his cases he had taught the patients to pass their own bougies, and by great patience and perseverance on the part of the house-surgeons and nurses, as well as fortitude on the part of the patient, they had all succeeded so well that they might be looked upon as permanent cures. After a time the improvement in the capacity of swallowing introduced a new automatic dilatation, which probably aided the permanence of the instrumental dilatation.

Local News

SCOTLAND

Department of Health

Dr. James L. Brownlie, Chief Medical Officer to the Department of Health for Scotland, who was on sick leave for some time, has now resigned from this post, but his successor has not yet been appointed. Dr. Brownlie took up the post some four years ago in succession to the late Dr. J. Parlane Kinloch, having been at that time bacteriologist and pathologist to the county of Lanark. A medical student of Glasgow University, he graduated M.B., Ch.B. there in 1913, and after holding resident appointments in the Glasgow corporation hospitals proceeded to the D.P.H. of Cambridge in 1916 and in 1918 to the M.D. of Glasgow, when his thesis on "The Problem of the Diphtheria Carrier" was highly commended. He was for six years assistant bacteriologist in the laboratory of Glasgow corporation and for two years one of the medical officers in the Department of Health before taking up the post of bacteriologist to the county of Lanark. He has contributed numerous papers to current medical literature.

St. Andrews Institute for Clinical Research

The seventeenth annual report of the Sir James Mackenzie Institute for Clinical Research at St. Andrews dealing with the year to October, 1936, emphasizes the general purposes for which this Institute exists—namely, to investigate disease before the occurrence of structural changes in the body, to investigate symptoms and minor maladies, to study conditions under which patients live, and to conduct research into the early symptoms of consumption and of ill-health in children. During the year sixty-two new cases were recorded and further notes were added to 967 cases already under observation. A classification of the records at the end of the year showed that additions had been made in steady sequence to 52 per cent., while 25 per cent. required bringing up to date and in 23 per cent. contact with the patients had been lost. In the children's department the Institute continues the records made up to the age of 2 years by the child welfare centre of the local authority and continues a series of notes on the children several times each year until these come under the school medical service. The report claims that the organization of the Institute has anticipated many of the recommendations now made by the recent Departmental Committee on Scottish Health Services, for it has conducted during several years in St. Andrews a medical

service supported by laboratory and specialist services and based upon the work of the general practitioner. The financial statement of the Institute shows for the year an income of £1,256 and expenditure of £1,461, but its assets amount to £15,389.

District Nursing in Scotland

At the annual meeting of the Scottish Branch of the Queen's Institute of District Nursing held in Glasgow on December 18th, Lord Provost John Stewart presided and Mr. J. M. Vallance, assistant secretary to the Department of Health, spoke of the important work for the public carried on by district nurses. He said there was now an army of over 900 fully trained nurses who played a great part in providing a health service for the country. The county federation that had taken place during the past year had further strengthened the activities of district nursing associations. With regard to the medical service for the Highlands and Islands the grants paid to nursing associations had amounted to £18,000 in 1935 as compared with £12,000 in 1925 and £6,000 in 1919. About 200 nurses were engaged in work in the Highlands and Islands, and the great success of medical service in this area was due to the complete co-operation that existed between doctors and nurses. The Maternity Services (Scotland) Bill now before Parliament was an attempt to solve the most serious problem that had confronted the Department for many years, and Mr. Vallance expected it would make a big reduction in infantile mortality. He considered that it would also strengthen voluntary nursing associations by arrangements between them and local authorities. Lady Susan Gilmour, secretary of the Scottish Branch, said she expected that district nurses would do their share in helping the national work of reducing deaths among mothers, especially in the country areas. District nurses during the past year had attended 14,521 maternity cases, or one-sixth of the total for Scotland, and the mortality amounted to 3.5 per 1,000 births as compared with 6.8 of cases otherwise attended.

ENGLAND AND WALES

The University College Hospital Extensions

Extensions of University College Hospital, Gower Street, close to the new home of the University of London, were opened last month by the Duke of Kent. The extensions comprise a paying patients' wing, a new ante-natal and infant welfare department, an *x*-ray diagnostic department, and homes for the nursing and domestic staff. In performing the ceremony the Duke of Kent emphasized the importance of the provision for paying patients, mentioning that University College Hospital had not been as fortunate as some other institutions in finding a generous donor to provide such accommodation, and therefore had taken upon itself the responsibility of erecting the building. Sir Herbert Samuelson, chairman of the hospital, stated that the new extensions had cost about £300,000, two-thirds of which had still to be raised. The new wing for paying patients claims to be one of the finest of its kind ever erected. Accommodation is provided for seventy-seven patients, all of whom are housed in separate rooms, except in two four-bed wards, which can be converted into separate cubicles when desired. All of them are attractively decorated, and some which have a south-westerly aspect have large balconies suitable for open-air treatment. On the ground floor, in addition to reception, waiting, and consulting rooms and offices, the new *x*-ray department is installed. The operating theatres, of which there are three, with ancillary accommodation, and the pathological laboratories are situated on the sixth floor. The hospital is said to be the first in the country in which all the theatres and sterilizing rooms, and indeed all the seven floors, are equipped with an automatic supply of constant running hot and cold, distilled, and sterile water. The air which comes into the operating theatres is filtered and passed through radiators to warm it. An alternative system of lighting is provided, coming on automatically in the event of breakdown of the main supply. On the top floor there is a solarium for convalescent patients, and a space which can be used for a badminton court for the nurses and for exercise for the patients. The new ante-natal and child welfare department, which was opened in part, is another example of careful planning. The post-natal clinic includes four examination rooms, with three cubicles for suspected cases of infectious or contagious disease, and these are so arranged as to have direct access to the street, in order that such cases can be removed at once by ambulance without retracing their way through the department.

Leeds Students' Union

It has for long been an aspiration on the part of the authorities of the University of Leeds and of the past and present students that adequate accommodation should be made for the Students' Union. When the great scheme for the extension of the buildings of the University was launched, a scheme which has been recently referred to in these columns (*Journal*, December 19th, 1936, p. 1282), this was one of the objects mentioned. The sum of £50,000 was spoken of as necessary for the purpose. The matter was taken up by the past and present students and a sum of about £4,000 has been collected. Nothing is more likely to encourage generosity on the part of those who have the welfare of the students at heart than action of this kind, and it may well have been this that influenced Mr. W. Riley-Smith of Tadcaster to give £25,000 towards the scheme last June. At the annual dinner of the Leeds University Old Students' Association, which was held on December 19th, 1936, it was announced that a Treasury grant of £15,000 had been voted towards the object. Plans have been in readiness for some time and will soon be put in hand. An excellent site has been secured within what will be the ring fence of the greatly extended university buildings. As the distance between these and the more strictly medical buildings, such as the Medical School, the Institute of Pathology, the School of Dentistry, and the General Infirmary, is not great, it is hoped that these Union buildings may act as a stimulus to that intimate relationship between all the faculties which is the essence of a university.

Medical Society of London

The second half of the 164th session of the Medical Society of London opens on January 11th with a pathological meeting at 8 p.m. Discussions will be held at 11, Chandos Street, W., at 8.30 p.m., as follows: January 25th, value of experimental and laboratory training in medical education; February 8th, treatment of facial paralysis; February 22nd, aetiology and diagnosis of jaundice; March 8th, effects of prolonged dorsal decubitus; March 22nd, consideration of some occupational diseases. The Lettsomian Lectures on "Surgery of the Thyroid Gland" will be delivered by Sir Thomas Dunhill on February 15th and 24th and March 1st, at 9 p.m. The annual general meeting will be held on May 10th, at 8 p.m., and will be followed by the Annual Oration on "Perspective and Poise in Practice," by Dr. R. A. Young, and a conversazione.

Birmingham Health Congress

The Earl of Dudley will preside over the Health Congress of the Royal Sanitary Institute at Birmingham from July 12th to 17th. The Minister of Health (Sir Kingsley Wood) will address a general session on July 13th. The deliberations of the Congress will be divided among eight sections dealing with: preventive medicine; engineering, architecture, and town planning; maternity, child welfare, and school hygiene; veterinary hygiene; national health insurance; hygiene in industry; tropical hygiene; sewage disposal. There will also be conferences of representatives of local authorities, medical officers of health, engineers and surveyors, sanitary inspectors, and health visitors.

Correspondence

Metabolic Factor in Rheumatism

SIR,—I see from the article by Dr. R. G. Gordon in your issue of December 19th, 1936, that we are returning to the conception I have advocated for the last twenty years—namely, that in chronic rheumatism a series of external factors—meteorological, dietetic, mental, toxic, and infective—acting on a specially predisposed individual disturb first of all the regulators of metabolism (the endocrines, including that most important endocrine the liver, the vegetative nervous system, and the psycho-associational cortex), and thus determine metabolic disturbances which, acting on the tissues of the joints, cause the terminal lesions of chronic "non-specific" arthritis. The fundamental error which has encumbered research on rheumatism during recent years consists in having taken the part for the whole, and thus having laid undue stress on the infective factor (one of the external factors) and concentrated on an exaggerated pigeonholing of the terminal results of the disease—the arthritic localization. Recent work confirms the importance of the metabolic factor and the necessity of considering the rheumatic patient as a whole and not from an exclusively bacteriological or anatomical point of view.

Two points must be stressed in consideration of the metabolic factor in chronic rheumatism. The first point is that metabolic disturbances are not uniform. Every individual, and therefore every rheumatic, experiences psycho-neuro-endocrine reactions, and thus metabolic disturbances according to his own special psycho-neuro-endocrine constitution. For this reason, as I pointed out in my communication to the International Congress for Rheumatism in Moscow, we find in certain rheumatics a low basal metabolism, in others a high one, in some a low blood calcium (hypoparathyroidism), in others the contrary (hyperparathyroidism), and so one. The second point is that among the metabolic disturbances found in chronic rheumatics are included those which manifest a special inadequacy of the joint tissues, and these are important because they explain the localization of the general disturbance on the joints. Sulphur is an important element in the local metabolism of the joints. Derangement of the regulators of sulphur metabolism indicates an inadequacy of the local resistance of the joints. This explains the frequency with which a disturbed sulphur metabolism is found in chronic rheumatics—a frequency accepted by most authors since my first work on the subject—and also the efficacy of sulphur spas and sulphur treatment, including gold treatment, which, in fact, is treatment by gold plus sulphur.—I am, etc.,

London, W.1, Dec. 22nd, 1936. A. P. CAWADIAS.

SIR,—Dr. R. G. Gordon's article on rheumatism in the *Journal* of December 19th, 1936 (p. 1243), interested me from the stress laid on the metabolic aspect.

For some time I have noticed that certain cases of acute lumbago show definite urinary changes very suggestive of a gouty metabolism. These are demonstrated by a lateritious deposit, a *p*H value of 5 to 5.4 as measured by the B.D.H. capillator, and an increased frequency caused by the hyperacidity. The local findings in these cases have been tenderness and a bilateral fibrositis so far as I remember (unfortunately I have no notes). The underlying pathology is presumably an increased acid formation in the muscles, which acid is retained unduly long owing to deficient circulation caused by the fibrosis pressing on the blood vessels. This fibrosis may of course in the first place be induced by faulty metabolism, thus causing a vicious circle so far as local symptoms are concerned.

The metabolic aspect of these cases is supported by the symptomatic relief following the exhibition of iodides and alkalis. This does not deal with the fibrositis, which requires physiotherapy for its dispersal.—I am, etc.,

I. H. LLOYD-WILLIAMS, M.B., B.S.

Southport, Dec. 20th.

Blood Transfusion

SIR,—Mr. P. L. Oliver has made the suggestion that a national blood transfusion conference should be held at which those who have had experience of this method of treatment should exchange views and draw up a series of recommendations (*Journal*, November 21st, 1936, p. 1032). Such a conference is long overdue, and it is to be hoped that it will be convened without delay.

There is at present a great deal of confusion of thought on this subject. Statements originating from the time when blood transfusion was a rare and exciting adventure have been reproduced in the textbooks from one edition to another. Isolated cases of transfusion accidents are reported from time to time, and we are invited to draw conclusions from them. Reports of cases that have been transfused by inexpert operators can do nothing but confuse the issues. I hope Dr. N. S. Plummer will take no offence if I cite as an example one of the cases in his interesting and able report in the *Journal* of December 12th, 1936 (p. 1186). A woman with advanced mitral stenosis was given 600 c.cm. of blood in one transfusion. Criticism without full knowledge of the circumstances can serve no useful purpose, but Dr. Plummer himself expresses the opinion that probably this case was unsuitable for transfusion, and surely if a transfusion was necessary the quantity given should have been very much smaller. One cannot help wondering whether some other imperfections of technique may explain the accidents in some of the other cases quoted.

Dr. Plummer states that 50 per cent. of transfusions are followed by some sort of reaction. I would submit that with a proper technique only about 5 per cent. of cases have any reaction at all, and most of these are very slight. In over 400 transfusions carried out here in the past thirteen years there were only two fatalities which could be ascribed to the transfusion. Both these cases were bad risks in which transfusion was undertaken as a choice of evils. One was a case of carcinoma with femoral thrombosis; the other was a man of 86, a case of haematemesis. Although in a straightforward case blood transfusion is a comparatively simple procedure there are numerous pitfalls for the inexperienced operator. The use of blood which has been overheated or blood containing microscopic and even macroscopic clots, stale saline, or citrate, the use of imperfectly cleaned rubber tubing containing a film of old blood from a previous transfusion, and too rapid injection of the blood—these are some of the mistakes to be guarded against, and some of them are not yet universally appreciated.

In many hospitals blood transfusion is not a particular duty of any single member of the staff, and since it is time-consuming and is often an emergency procedure it is frequently left to the house-surgeon to carry out. This may often be an unavoidable necessity, but my point is that no conclusions should be drawn from reports of transfusion accidents unless the operation was carried out

by someone experienced in the method. Mr. Oliver's suggestion that transfusions should be carried out by men specially trained in that work should certainly be more generally adopted. Moreover, when the work is centralized, as it is in this hospital, and several transfusions are done every week, it becomes possible to keep a supply of blood from a universal donor in the ice-box ready for emergencies, thus saving much valuable time.

Among the problems urgently calling for solution are the following:

1. A simple method of storing blood without sacrificing the plasma.
2. The relative merits of citrated, defibrinated, and whole blood.
3. The advantage of a number of small transfusions rather than a single transfusion in the various types of case.
4. The safety or otherwise of repeated transfusions from the same donor.
5. The most satisfactory technique.

From my own limited experience it seems that ordinary citrated blood may be stored in the ice-chest for one to six days with safety, provided it is well mixed with the citrate both during and for some minutes after collection. It has been stated that defibrinated blood is toxic, but after using it in 150 cases I have failed to observe any evidence of this. The work of Wright suggests that the use of defibrinated blood has advantages over the citrate method in all cases in which one is endeavouring to increase immunity to infection.

To my mind it has not yet been proved that there is any danger in repeated transfusions from the same donor. I have done it scores of times without observing any ill effect. If such reactions do occur possibly the interval between transfusions may here be of importance, as in the case of serum anaphylaxis.

The simplest technique is usually the best, but methods involving the use of rubber tubing have two disadvantages. Unless the blood is heated to an undesirably high temperature it is nearly cold by the time it reaches the vein. Further, the adequate cleaning of rubber tubing is a most complicated process. I have found the simplest satisfactory apparatus is a 100 c.cm. Record syringe with a Harrison's tap on the needle. After injecting each syringeful the tap is turned off and the syringe detached, to be refilled by the nurse. In this way blood can be given at body temperature.

The suggested conference might do much to elucidate some of the points I have mentioned and indicate the directions in which further research is required.—I am, etc.,

R. VAUGHAN FACEY,
Honorary Bacteriologist, Royal Victoria and West Hants Hospital, Bournemouth.

Bournemouth, Dec. 21st, 1936.

SIR,—Dr. N. S. Plummer, in his recent report of six fatalities following blood transfusions, writes: "Ordinary precautions had been taken in the preliminary tests and in the performance of the operation." He makes no mention, however, of the method used nor of the length of time taken in giving the transfusions.

It is now, I think, agreed that it is safer in all cases, especially in those suffering from disease of the heart muscle or with anaemia, to give the blood slowly, taking at least an hour for a transfusion of a pint. In order to do this satisfactorily some kind of drip apparatus is needed, and the "Laurie" glass drip is most satisfactory. The simple tube-and-funnel method should never be used, since it is difficult for the blood to be given slowly. Its only virtue is its simplicity, but this is outweighed by the increased risk. In a patient with a defective heart muscle it is more than likely that if a pint of fluid is introduced quickly into the blood stream the circulation will become embarrassed, in which case pulmonary oedema and heart failure may easily follow. For some years I have used the slow-drip method in giving blood transfusions, and febrile or anaphylactic reactions have been markedly reduced in number and greatly lessened in severity. Rigors and severe reactions are practically unknown now.

It is, however, with patients suffering from anaemia, especially of the haemolytic variety, that great care has to be taken to avoid these reactions, since in these cases such reactions are liable to be very severe and even dangerous. Therefore, in order to use with safety blood transfusions, which are so valuable for these cases, the blood of the same group as that of the patient should be given, and besides the testing of the recipient's serum against the donor's red corpuscles, the patient's red cells should also be tested against the donor's serum. The transfusion should then be given slowly, at a rate of not more than three drops of blood per second.

If blood transfusions continue to be given quickly, severe reactions and fatalities will continue to occur.—I am, etc.,

Derby, Dec. 24th, 1936. F. GRAHAM LESCHER.

A Problem in Diagnosis

SIR,—Under the heading "Clinical Memoranda" in the *Journal* of December 26th Mr. H. Bernard Bagshaw discusses a problem in diagnosis. Summarized, the notes of his case are as follows:

A man aged 50 received multiple injuries to his head, arm, and leg. He was unable to pass water. The lower portion of his abdomen was guarded but not rigid; there was dullness but no distension. A rubber catheter was passed, following an attempt with a gum-elastic catheter, and 30 ounces of blood-stained urine were withdrawn. The temperature and pulse rate remained normal. The inability to pass urine persisted and a catheter was tied in and drained 60 ounces in the day. When the catheter was removed micturition was still impossible and an instrument was passed every three hours. The amount withdrawn per diem was 60 ounces. Vomiting and increased abdominal pain supervened. He died six days after admission. Post mortem a large rupture of the fundus of the bladder was found. At no time were there the usual signs of the acute abdomen and the pulse rate did not rise for three days after the accident. Mr. Bagshaw thinks that it is possible that the catheter passed per urethram and entered the hole in the bladder, and that in reality the general peritoneal cavity was drained on each occasion.

I published the notes of a similar case in 1928 (*Injuries to Bones and Joints*). It was then pointed out that "the onset of peritonitis, cellulitis, and suppuration with accompanying rigors, rise of temperature, and general symptoms of toxaemia may be delayed for a period of two or even three days in cases of leakage from the urinary bladder containing healthy urine."

The case in question was seen in France at a casualty clearing station in 1916. The man had fallen from the roof of a house and fractured his jaw-bone and both forearms. He had abdominal tenderness and made ineffectual attempts to pass water. A fracture about the pubis was suspected but not confirmed, and a ruptured bladder diagnosed. On passing a catheter, however, a full quantity of blood-stained urine was withdrawn. This appeared to justify delay, especially as the pulse remained about 80 and there was no rise of temperature. The inability to urinate continued. A catheter passed every four hours resulted in the withdrawal of normal quantities of unstained urine. Blood was only present on the first occasion. Twenty-four hours after admission vomiting

commenced and abdominal rigidity was more marked. The abdomen was opened and a large rent was found in the fundus of the bladder. There was a quantity of urine without odour lying free in the abdominal cavity. While the abdomen was open a catheter was passed, and it then became obvious that on every previous occasion the instrument went through the rent in the bladder and that, in fact, extravasated urine had been withdrawn. The rent was stitched and the abdomen closed without drainage. Notwithstanding the multiple injuries and the delay of twenty-four hours the patient did well.

The case is in all relevant respects similar to that published by Mr. Bagshaw. The first diagnosis was correct, but the result of catheterization was so confusing that there was uncertainty and delay. There is little doubt that the catheters passed by Mr. Bagshaw went through the tear in the bladder into the general peritoneal cavity. He has done a service in drawing attention to a certain group of cases in which the success of repeated catheterization may be more apparent than real. I think we should suspect ruptured bladder after trauma when the urine is in the first instance blood-stained and when the inability to pass water persists. Catheterization and the general condition of the patient may mislead us for two or three days.—I am, etc.,

London, W.1, Dec. 26th, 1936. W. I. DE C. WHEELER.

Mechanics of Glaucoma

SIR,—There are several objections that may be raised to the theory expressed by Mr. Richard Kerry in your correspondence columns of December 19th, 1936, but the chief one is the absence of any other evidence of cyclitis in acute primary glaucoma. An eye suffering from this condition, submitted to operation such as iridencleisis in the acute stage, whitens rapidly without the appearance of precipitates on the cornea or haze of the aqueous fluid.

The appearance is very different when glaucoma develops secondary to cyclitis, and whereas the raised tension of an acute glaucoma does vast damage in a short while, that of glaucoma secondary to cyclitis, although maintained over a long period, commonly leaves no adverse effects.—I am, etc.,

Hull, Dec. 19th. D. STENHOUSE STEWART.

Diphtheria Immunization

SIR,—I have just read an extraordinary communication in your issue of December 12th, 1936, from Dr. C. H. Foley (p. 1230), in which he refers to anaphylactic shock following the first of three diphtheria prophylactic injections. He states that this phenomenon is an objection to the three-injection method of prophylaxis, and refers to the increase of this anaphylactic tendency owing to the use of prophylactic diphtheria antitoxin in contacts. He seems to think that when such subjects are subsequently immunized they are liable to develop anaphylactic symptoms.

My personal experience of giving repeated injections of prophylactic must amount nearly to the six-figure mark during the last twelve years or so, and many of the children so treated have had antitoxin previously. I have never once, during all that time, had to use adrenaline in the treatment of any disturbance due to a second, third, or, in fact any other prophylactic injection, nor have I ever even had to consider its use. I think it would be interesting if Dr. Foley would tell us, first, what is his definition of anaphylaxis, and secondly, what prophylactics he has used which have produced the symptoms he complains of. For years I have worked with a variety of brands of toxoid-antitoxin mixture and toxoid-antitoxin floccules, all of which contain a small amount of serum. The instances in which any reaction of sufficient severity to demand discontinuance of treatment has occurred are so few as to be negligible.

My view is that reactions are more common and more severe following the use of alum-precipitated toxoid than is the case with any other prophylactic, except strong formol toxoid, whatever the past history of the subject as regards previous diphtheria or passive immunization. I am quite unable to reconcile Dr. Foley's experiences with my own, unless he and I have a totally different conception of the meaning of the term anaphylaxis.—I am, etc.,

GUY BOUSFIELD, M.D., B.S.Lond.

London, S.E.5, Dec. 21st, 1936.

Regions of the Mind

SIR,—In view of the special interest taken in psychology and the frequent reviews of textbooks and other works on this subject in the *British Medical Journal*, it may be worth while to quote from a letter I received in 1904 from the late Dr. Alexander Hill, relating to the definition of the "soul" or "spirit." Dr. Hill was then the Master of Downing College. He stated:

"Alfred Russel Wallace stood alone amongst evolutionists in accepting an evolutionary origin of all animate things other than man. He required a separate origin for man. Subsequently he recognized, as everyone must, that man's body is an adaptation from that of four-footed and creeping things, but still holds out [he died in November, 1913, aged 90] in what is quite an incomprehensible way for a difference in kind between the mind of animals and the mind of man. No true evolutionist can even think of such a separate origin, but we—most of us—find no difficulty in supposing that all man's faculties are products of evolution. We have to fit man into the animal series as best we can. As to St. Paul's 'spirit' or Aristotle's 'cognitive soul,' the conception does not differ widely from the modern 'ego.' Ward says, 'No system of philosophy can afford to extrude the ego,' and such a standpoint satisfies most of us. It leaves a very open door."

This is what Hill wrote a third of a century ago. Since that time the study of psycho-pathology has stressed the teaching that there are two separate regions of the mind—one comprising the unconscious, or the primordial impulses and the instinctive urges that strive for relief but are mostly unrecognized; the other, the conscious region, which, after deliberation, directs the decisions expressed in the general conduct. Freud described the former as *impersonal*, and referred to its place in the mind as *it* (or the Latin *id*), which, for his pupils, is its present identification mark. The conscious part of the mind, or the critical attitude, he described as the "ego," and he added that there was a perpetual struggle on the part of the unconscious inherited impulses to reach the "ego," but these impulses (most of them connected with the instinct of self-preservation) are often kept back or withheld by the so-called censor, or the super-ego, which is the third adjustment, and described as the "soul" or "spirit"—namely, the personality which endeavours to bring inner perceptions or the subjective life into harmony with external reality or objective sense perceptions. It is clear that Dr. Hill regarded the "soul" or "spirit" as the mind in its moral and religious aspects, which means the mind in the contemplation of higher things. The "ego" is no new conception. It is the splitting up of the "ego" which has become the vogue to-day. We are in a period when analysis is rife—a schizoid era, afflicted with schizophrenia.—I am, etc.,

ROBERT ARMSTRONG-JONES.

London, W.8, Dec. 20th, 1936.

Benzedrine

SIR,—Your article on the use of benzedrine (December 12th, 1936, p. 1204) prompts me to send the following brief notes.

The patient was a man aged 40, giving a history of an attack of bradycardia associated with low blood pressure in March of this year. On October 8th he complained of a depressed, sinking feeling, and was very irritable, wanting to "shriek when upset." There were heavy, stupefying headaches and attacks of exhaustion and somnolence. The blood pressure was 110/74 mm. Hg, pulse rate 84. I ordered him tablets of benzedrine sulphate (Menley and James), the doses to be adjusted according to the subjective results. On October 26th he reported that his sleep was interfered with, though at times he was conscious of increased energy. Diurnal somnolence was banished and there were no attacks of depression, but he occasionally felt dizzy; his systolic blood pressure was 90 mm. Hg. On November 9th he was able to manage the dosage so that interference with sleep did not occur. He was conscious of great heaviness and tiredness in the mornings, then on taking the tablets after breakfast he was "braced up" for some hours; blood pressure 96/70 mm. Hg. On November 28th he was taking three tablets daily; any larger dose caused sleeplessness. He noticed increasing difficulty in voiding faeces and urine, and was conscious of "something holding them back." Exhaustion was less severe, but still present at times; blood pressure 106/76 mm. Hg.

I decided to abandon this particular form of experimental therapy and put him on a good old-fashioned mixture of potassium bromide and compound syrup of iron and phosphorus. On December 12th his blood pressure was 112/74 mm. Hg. He said that he felt more equable and more sure of himself.

In this case the drug appears to have acted in ways contrary to those usually described. The fall in blood pressure was striking under the circumstances, and the apparent spasm of his sphincters, about which his information was wholly voluntary, is difficult to explain.—I am, etc.,

DONALD M. O'CONNOR.

London, S.E.21, Dec. 17th, 1936.

The Anaesthetist in the Theatre

SIR,—Anaesthetists' needs were discussed by Dr. George Edwards at the meeting of the Section of Anaesthetics of the Royal Society of Medicine on December 4th and reviewed in the *Journal* of December 12th, 1936 (p. 1204). Having spent one-third of my life as an anaesthetist I fully sympathize with Dr. Edwards's difficulties. I agree with him that the anaesthetic room and the theatre should be on the same level as the surgical wards; and the passage to and from the anaesthetic room should not present any "terrors" to the patient. The two rooms should be close together and should communicate by a partition-door. The anaesthetic room should look like a miniature ward or a private bedroom or an examination room, so that little or no psychic trauma be caused in any patient. The transport of the patient should be undertaken by the nurses rather than by porters dressed in theatre clothes.

Dr. Edwards suggested, too, that there should be a recovery room adjacent to the theatre, and that the patient should remain there until his condition was such that he could be safely taken back to the ward, this arrangement allowing both surgeon and anaesthetist to be within easy call in case of emergency, especially when engaged with other operations.

Here I beg to differ, for I have had experience of such recovery rooms next to the theatre. First, how many patients could be accommodated in one or two recovery rooms? Secondly, would it not distract both surgeon and anaesthetist from concentrating their attention on the case in hand? Thirdly, the recovering patient would in all circumstances disturb the silence that should be observed in and about the operating theatre.

I would suggest that the recovery rooms should be in the vicinity of the surgical wards and attended by a special nurse and a medical officer, both competent to treat immediate post-operative and post-anaesthetic conditions. With each patient returning from the theatre there should be a report of the operation performed, complications found, and condition during operation and anaesthesia. Also suggestions for further treatment and observations might be made. In any emergency or difficulty the attending officer should be in touch with the operating surgeon for further instructions.—I am, etc.,

London, W.1, Dec. 18th, 1936 F. N. TARAPORVALA.

Cervical Gland Tuberculosis

SIR,—Judging from some of the letters, and especially one, in the recent correspondence in the *Journal* with regard to cervical gland tuberculosis, it would appear that there still exist those who would advocate the so-called radical surgical procedure which one hoped had been dead and buried many years ago.

It is, I think, fairly obvious, when we consider the pathology of the condition and have any clinical experience, that a wise combination of surgical procedure and ultra-violet ray therapy is the course of election, with perhaps the addition of tuberculin injections in selected cases.

The surgical intervention should be limited to the removal of the involved gland or glands and abscess cavity, if there be one, with primary suture if possible, and, if not, only allowing for a very small drainage aperture. Such an operation should be followed by ultra-violet irradiation, both local and general, the latter being of the utmost importance.

Treatment carried out on these lines will, in the great majority of cases, result in a scarless or practically scarless site of operation, no return of the infection, and general good health.—I am, etc.,

Bath, Dec. 18th, 1936. H. NORMAN BARNETT.

Physical Medicine

SIR,—Dr. A. Gordon Watson suggests in his letter in the *Journal* of December 19th, 1936 (p. 1288), that the Medical Advisory Committee of the British Health Resorts Association should press for a chair of physical medicine at all teaching centres. Well, we tried it on London University as the body which has often been most enterprising in regard to new developments in medical teaching. We took up informally with the University the project of a chair in medical hydrology and climatology at the point where it had been left in 1914, when a very distinguished body of medical men, including Osler, Allbutt, Mott, and many others, made a proposal to this effect, backed by a reasoned statement. We returned to the charge in 1935 and drew up a document showing that this is the only country of any importance which offers

no special training in these subjects, and one of the few which offers no diploma after post-graduate instruction. We were told that there is no evidence of any demand in this country for such instruction, and therefore no justification for a chair or even a lectureship.

We are not convinced; and we intend to use every opportunity that offers for demonstrating our belief that the subject of physical medicine (of which climatology and hydrology are an important section) is worthy of the attention of our medical education authorities.—I am, etc.,

ALFRED COX,
General Secretary.

British Health Resorts Association Ltd.,
London, W.1, Dec. 21st, 1936.

Milton's Blindness

SIR,—I was much interested in the article by "L. R." under "Nova et Vetera" in the *Journal* of December 19th, 1936, on the subject of Milton's blindness, and in his reference to my opinion as to its cause.

Milton's work, the intriguing incongruities of his changing temperament, the cause and the effects of his tragic blindness are of perennial interest. At this distance of time it is of course impossible to be absolutely positive or dogmatic as to the exact pathological nature of his blindness. Only an examination by a modern ophthalmologist, with all his modern armamentarium and his present-day precision of diagnosis, could settle the question. Even then I expect someone would ask for a second opinion. In those days, before ophthalmoscopes for instance, even a lengthy report by a contemporary doctor of Milton's could not seek to define a diagnosis, at least not a diagnosis as we understand the term. The diagnosis given then was just amaurosis or gutta serena; some were satisfied merely to say it was a punishment from heaven.

All we can now do is to collect all extant references to the symptoms and signs of Milton's blindness, then to tabulate all *the possible* pathological explanations, and finally from among all these possibles carefully to determine the one which is *the most probable* diagnosis. The most probable diagnosis on all the evidence about Milton's blindness is, I think, primary chronic glaucoma. "L. R." suggests an intracranial tumour—namely, a cyst arising from remnants of Rathke's pouch and exerting pressure on the optic chiasma. This could certainly cause some of the clinical features of Milton's case, but there were several important, indeed cardinal, symptoms which it would not explain, including the rainbow halo, the sharp pains, and the poet's health during the subsequent twenty-two years of his life.

It is not possible to discuss here the various clinical manifestations. I have endeavoured to set them all out in my recent book *Hero-Dust*. May I, however, remark here that in coming to a diagnosis in circumstances like these an important consideration in one's deliberations should be the fact that a cyst arising from the remnants of Rathke's pouch is a rare thing compared with glaucoma. So that of all the possible alternatives in the differential diagnosis which have been suggested both before and since the publication of my book I still feel that I have as yet no reason for altering the final conclusion to which I then came—that the most probable explanation of the cause of Milton's blindness as judged upon all the evidence available is primary chronic glaucoma.—I am, etc.,

London, W.1, Dec. 21st, 1936. JAMES KEMBLE, F.R.C.S.

The Consistency of University Examinations

SIR,—The very interesting article by Dr. W. Gilbert Millar published in your columns on December 12th, 1936, appears at a time when there is considerable disquietude among educationists and others in regard to the value of examinations. The analysis of the Edinburgh results that he has made is a valuable contribution to the growing literature on the subject of examinations in general, and is noteworthy as a pioneer effort to assess the reliability of certain medical examinations in particular.

The results of his investigation into the correlation existing in the marks recorded in certain medical subjects lead him to suppose that these medical examinations, in contradistinction to those others investigated by the International Examination Inquiry Board, "do give a pretty fair estimate of a student's capabilities, and that such anomalies as are disclosed by Hartog and Rhodes do not occur, or, if they do, only to such an extent as to be negligible." But are there any real grounds for so sanguine a conclusion? It would be very surprising indeed if medical examiners alone had evolved a test technique enabling them to reach a position where serious anomalies did not occur. It is difficult to see, for example, why the results in such examinations as Dr. Millar quotes should, in the nature of things, be any more reliable in a statistical sense than those, say, of the honours examinations in university mathematics, or the university honours history examinations quoted by Hartog and Rhodes in the publication referred to. The evidence adduced does not, I suggest, altogether justify the somewhat sweeping generalizations made in summary form at the conclusion of the article.

The coefficients of correlation between the six subjects of the combined third-year examination given in Tables I to VI are calculated on a relatively small number of cases (less than 200) and the value of "r," ranging round about + 0.5, is interpreted as indicating "a very significant correlation of high degree" when taken in conjunction with a P.E. of about ± 0.04. Dr. Millar admits, of course, that the P.E. in itself does not furnish the best guide to significance in the case of correlations, and quotes it merely as a convenient method of expression. He has accordingly checked the results by Fisher's "t" and "z" formulae; but even so, it is surely a bold assumption that an average coefficient of + 0.5 under the conditions of this investigation indicates a high degree of correspondence in the results. Hartog and Rhodes, for example, referring to the correlation coefficients between the orders of the different examiners for the papers in the history honours examination, most of them of the order "r" = + 0.5 (see "The Marks of Examiners," p. 341), take it for granted that they "may justifiably say that this is a collection of *low* correlation coefficients." There is obviously room, therefore, for disagreement, not so much on the score of the significance of "r" as on the value to be attached to that significance.

It is to be noted also that Dr. Millar's results, while showing a certain uniformity of performance among the candidates, do not necessarily reveal reliability—namely, the degree of agreement between independent sets of measurements of the same set of things. For this purpose it is essential to compare the marks of the various examiners, noting differences in standard deviation, random variation, and the like discrepancies. As no direct evidence of this kind is produced it is a little unfortunate that the word "consistency" should be used in the title of the article, for the term "consistency" is now being regarded as the more suitable technical substitute for the

somewhat ambiguous term "reliability." Strictly speaking, the reliability or, better, the consistency of the medical examination is not made out in this research, valuable and informative as it is in other respects, and not least in that which involves "validity" as determined by the follow-up inquiry of the final medical examination. The prognostic value of the combined examination in the third year seems fairly well established, and the coefficient of correlation ("r" = + 0.66 ± 0.02) between it and the final is, I think, higher than any similar figure arrived at in previous researches of a like nature. It would be of great interest and value if this type of investigation were extended to other medical schools and the results compared.—I am, etc.,

Edinburgh, Dec. 17th, 1936. JOHN L. HARDIE.

The College of Surgeons and its Members

SIR,—At long last the Council of the Royal College of Surgeons of England has broken silence, and given considered replies (can one call them reasons?) to the century-old request of the Members for some representation on its Council. What are they?

1. "The main function of the College is to promote the study and practice of surgery." Have the Members, who are nine-tenths of the College and are the largest body of practising surgeons in England, no interest in the study and practice of surgery?

2. "An opportunity for discussing matters is afforded at the annual meeting of Fellows and Members." In recent years many occasions have occurred when no statutory annual meeting has taken place owing to those present being one or two short of the necessary quorum of thirty, although the President and many members of the Council were there, but by a unique regulation of the Council they are not qualified to form part of the quorum. The quorum of the House of Lords is four, that of the House of Commons is thirty—the same number as the College—but the members of the Cabinet are not disfranchised for the purpose of a quorum. When the annual meeting does take place the report of the Council refers only to matters which have been dealt with in the past year and are already *faits accomplis*, as occurred recently on several occasions. "Too late" was the reply in reference to them.

3. "Representations made to it [the Council] by any Member or body of Members will receive careful consideration." This is a poor substitute for representative Members having an opportunity of setting out the views of Members on questions as they arise at Council meetings—the effective time—or of presenting and discussing thereat matters referred to them by their brother Members.

The poverty of the response of the Council to the resolution passed at the last annual meeting is a great contrast to the wealth of the arguments which have been brought forward in favour of representation of Members on the Council in the interests of the College, its Members, and the public.—I am, etc.,

London, S.W.1, Dec. 18th. REDMOND ROCHE.

Rhythmical Agranulocytosis

SIR,—Dr. Embleton has reported an interesting case showing conspicuous blood changes without loss of health (*Journal*, December 19th, 1936, p. 1258). I do not blame him for current synthetic nomenclature, but I think its inaccuracy begets confusion. Leucocytes fall naturally into two groups: granulocytes having specific eosinophil or neutrophil granules, and agranulocytes having neither. The latter occur in all vertebrates, and are the only leucocytes in fishes; the former appear in amphibia and, gradually increasing in importance, predominate in mammals. Now the point is that no vertebrate can do without agranulocytes, and Dr. Embleton shows that even man can manage without granulocytes for a time. Assuming that a normal count is neutrophils 5,000, lymphocytes 2,000, and monocytes 350, his chart shows not rhythmical but continuous moderate agranulocytosis, as one would expect. Considerable agranulopenia is rare and of evil omen.

Granulopenia, however, is common enough, and in man eosinophils are so often suppressed that they must be highly specialized and of use only in exceptional circumstances. Eosinopenia, therefore, is negligible, and the familiar term "neutropenia" may be safely substituted for granulopenia. Neutrophils are more generally useful and react so energetically to our frequent coccal infections that they are almost indispensable, but it is well known that they are unduly sensitive to certain toxic influences. In peritonitis Dr. Piney has reported a total white count of 900 per c.mm., of which 780 were lymphocytes; and throughout the second and third weeks of typhoid fever eosinophils are suppressed and neutrophils may fall to 1,000 per c.mm. without harm if the agranulocytes do their duty as in Dr. Embleton's case, in which there are recurrent periods of complete neutropenia during which the monocytes invariably rise to the occasion. These, the most primitive of leucocytes, seem to be all-rounders, and often play the leading part—for example, in malaria, kala-azar, and glandular fever (infective mononucleosis). Therefore, so long as nomenclature is based on the blood condition Schilling's term "malignant neutropenia" is greatly to be preferred for most of these cases; and for those like Dr. Embleton's recurrent or rhythmical neutropenia sufficiently emphasizes the really outstanding abnormality, which is always attended by pyrexia, ulcers in the mouth, and disintegration of erythrocytes with a consequent great increase of blood platelets.—I am, etc.,

West Ealing, Dec. 28th, 1936. ROBERT CRAIK.

A Case of Locked Twins

SIR,—In view of the rarity of this condition I am sending you a report of a case recently seen in St. Thomas's Hospital which may be of interest.

The patient, aged 30, 2-para, was admitted to hospital on October 27th with mild albuminuria, which responded well to rest and diet. An *x*-ray examination confirmed the presence of twins, the first presenting by the breech, the second by the vertex.

On November 11th she went into labour; the first stage lasted seven hours. After one and a half hours in the second stage the first child, a breech, was born spontaneously as far as its umbilicus; the arms were easily brought down, but no further progress occurred. On internal examination the head of the second child was found to have entered the pelvis below that of the first, thus obstructing delivery. Owing to the small size of the foetuses it was fortunately possible to push up the second head, whereon the first child was easily delivered. The child had made several inspiratory efforts *in utero* and was in a state of white asphyxia, but revived within a few minutes. The second child was born without difficulty after half an hour. The respective weights were 4 lb. 11 oz. and 4 lb. 6 oz.

The puerperium was quite uneventful.

—I am, etc.,

L. A. C. WOOD,

St. Thomas's Hospital, Dec. 19th. Obstetric House-Physician.

Medico-Legal

SURGEON'S LIABILITY FOR NURSE'S NEGLIGENCE

INGRAM *v.* FITZGERALD

The Court of Appeal of New Zealand, consisting of five judges, gave judgement recently on an interesting point of law (to which our Wellington correspondent referred in the *Journal* of December 12th, 1936, p. 1221): whether the surgeon in charge of an operation can be held liable for the negligence of a nurse when he has not himself been negligent. The facts were simple, and were admitted. It was an assistant nurse's business to paint the abdomen of the patient with tincture of iodine, and through her negligence in misplacing the containers she painted the abdomen with iodized phenol. There were two immediately consecutive operations on the same patient, and the phenol was correctly used in the first and then wrongly placed on the tray holding the tincture of iodine. The surgeon discovered the error very soon afterwards, and took prompt measures. The action was removed into the Court of Appeal by consent, so that the learned judges could decide whether the surgeon was liable in law.

The Judgement

Mr. Justice Kennedy, delivering the judgement of the Court, said that the contention of the patient was that the surgeon had the right or power to control the nurses in the operating theatre, that they were his servants, and that he must answer for their negligence. This submission seemed to impose an intolerable burden upon the surgeon, for it would impose upon him the legal responsibility for negligence in the theatre even though he himself had exercised all possible care and even though it was wholly impossible for him to guard against or prevent the damage. The Court must inquire what the surgeon had undertaken to do and what had been negligently done; whether the negligent act was done by some person put into the surgeon's place to do an act which he intended to have done as for himself, or whether it was done by an independent collaborator upon whom he was entitled to rely. Under the conditions of modern surgery, observed the judge, it is impossible for the surgeon himself to do the whole work of an abdominal operation, and, in following the usual course of having the work done by a team, he was consulting not his own convenience but the interests of the patient. Thus the preliminary painting, the preparation in the theatre, the sterilizing of the instruments, and the final painting were generally performed by the nurses. The theatre sister and the assistant nurses were supplied by the private hospital where the operation was performed, and they thus had independent duties to carry out.

In the circumstances the Court thought that the proper inference was that the surgeon did not undertake personally to do all the work necessarily involved in the operation, including the preliminary painting. He must rather have undertaken to perform the operation in the hospital selected, with the appliances there available, and with the assistance and co-operation of qualified, competent, and experienced nurses attached to the hospital. It was true that he was in supreme control and had the right and the duty to intervene. The persons subject to that control were, however, skilled collaborators with independent duties, and he did not find it necessary, nor would he expect to find it necessary, to intervene to direct the manner in which they discharged those duties. They were not his delegates in the sense that they were there to do the work which he had contracted to do or to have done. They were for general purposes the servants of the hospital, but in the theatre they were subject to his directions. The Court therefore found that the surgeon was not liable for the negligence proved against the nurse.

Commentary

This decision is of special interest because the circumstances are in no way exceptional. The hospital was a private hospital, but the position would have been the same if it had been a voluntary hospital or even a municipal hospital. The question of the surgeon's liability for the negligence of a nurse usually arises when a swab or an instrument has been left in. In James *v.* Dunlop[1] a woman surgeon was held to be liable because the jury found that she did not make such personal search in the wound as was reasonable and proper and was not justified in closing the wound without making more extensive search than she had made. In that case, however, the surgeon was unable to call the theatre sister as a witness, and her defence was therefore handicapped. In Crotch *v.* Miles[2] a patient sued a surgeon alleging that he had left a pair of forceps in her body at operation. Lord Hewart, the Lord Chief Justice, made some observations in his summing-up which must be taken to set out correctly the law on the subject. He said that, although in the actual course of the operation the surgeon is not to be expected to busy himself with the counting of instruments or swabs, yet after the wound has been stitched up it is reasonable that he should personally satisfy himself that nothing is missing. His lordship then pointed out that the jury must ask themselves whether the surgeon on the day in question ought personally to have counted the instruments or whether he was entitled to say that it was the job of the skilled theatre sister and that he was entitled to act upon her report, remarking: "She is not his servant, she is one of the team. We can all make mistakes." They had to ask themselves the question whether it was a breach of duty on the surgeon's part that the theatre sister miscounted (always assuming that she did), and he added that they might think that the question was linked up with the question what the surgeon did after the operation was over. In the event the jury were not satisfied that the forceps had been left in at that operation at all.

In Van Wyk *v.* Lewis,[3] where a swab was left in, the appellate division of the Supreme Court of South Africa found that the surgeon could not be held responsible in that particular case. It observed that the operating surgeon no doubt has control of the operating room or theatre, and circumstances may arise where he may become liable for the acts of the nurse or sister in attendance. One of the judges, however, said that the relation of a nurse to a surgeon is not even analogous to that of master and servant; she is an independent assistant of the surgeon though under his control in respect of the operation. "The surgeon does not ensure that he will be responsible for every misfeasance of the nurse. To make him so would make his position intolerable."

In the present case the assistant nurse placed the beaker containing iodized phenol in the dangerous position while the surgeon was scrubbing up and long before it was applied to the patient. It was never suggested that the surgeon was at fault because the two liquids were kept in similar containers. There seems to have been no stage at which he could possibly have discovered the error before the damage was done, and there seems little doubt that the learned judges of the New Zealand Supreme Court came to their unanimous conclusion on good grounds. The test apparently must always be: in the particular circumstances of the case could the surgeon reasonably have been expected to supervise or check the actions of the assistant and to intervene if a mistake was committed?

REFERENCES

[1] *Law J.*, 1931, **71**, 289.
[2] *British Medical Journal*, 1930, **1**, 620.
[3] *S. Afr. Law Rep.*, 1924, 438.

The November issue of the *Bulletin de l'office International d'Hygiène Publique* contains among others articles on typhus in Mexico from 1925 to 1935, the epidemic of three-day fever at Athens and the neighbourhood in 1935, and the organization and new programme of studies at the Kitchener Medical School of Khartum.

Obituary

SIR JOHN BLAND-SUTTON, BT., LL.D.

Past-President, Royal College of Surgeons of England ;
Consulting Surgeon, Middlesex Hospital

We announced last week with much regret the death on December 20th, in his eighty-second year, of Sir John Bland-Sutton, the eminent surgeon and naturalist, whose active working life was spent in large part at the Middlesex Hospital, to which he presented the Pathological Institute that bears his name. There was a time early in his career when it seemed doubtful whether Bland-Sutton would stick to pure science and the study of comparative pathology or become one of the leading surgeons of his time. He decided, fortunately for his many patients and the art of surgery, in favour of the latter course; but he never ceased to be interested in zoology and comparative anatomy and pathology, and his occasional papers on those subjects to the columns of the *British Medical Journal* were always welcomed by our readers.

John Bland-Sutton was one of the nine children of Charles William Sutton, who married a daughter of Joseph Wadsworth, of Northamptonshire farming stock. He was born on April 21st, 1855, at Enfield Highway, Middlesex. His father was what is commonly called in villages a naturalist, a man interested in all forms of animal life and skilled in taxidermy. Living in a country district John had every opportunity of gratifying that love for animals and plants which lasted all his life. He used to say that watching his father stuff birds gave him his first introduction to anatomy and physiology. Not being of robust constitution he spent a good deal of time in reading. During the last two years at school he acted as pupil teacher in training for a schoolmaster's life, but his innate interest in natural history in all its forms and his study of Huxley's, Darwin's, Owen's, and Tyndall's writings decided him to take up medicine and become a surgeon. It was at an unusually late age that he made this decision, and he only took the preliminary arts examination for the College of Surgeons diploma in 1878. Once off, he lost no time, passed the L.S.A. and M.R.C.S. examinations in 1882, and gained the Fellowship six years later. He studied anatomy in Cooke's School, and soon showing his unusual talent for dissection was offered a post as demonstrator. He did not accept this, but joined the Middlesex Hospital School of Medicine in 1878, where he was immediately made a prosector by Henry Morris and went up for his examination in anatomy at the College with his own pupils. He won a gold medal and scholarships at the school. While demonstrator of anatomy he began to interest himself in its comparative aspects and prepared many specimens for the museum. He visited Paris and Vienna, and had the idea of practising ophthalmic surgery, but while at Vienna the senior demonstratorship of anatomy in his school was offered him, and this, on the advice of friends, he accepted in 1881. In the same year he became attached to the prosectorium of the Zoological Society of London, and thenceforward took a keen practical interest in comparative morphology and pathology and in the welfare of all the inhabitants of the Zoological Gardens.

In 1886 there was trouble at the Middlesex Hospital because all the surgeons went away on holiday in August and September, and to meet it an assistant surgeoncy was created on condition that the holder stayed on duty in these months. Sutton was appointed, and thereupon made a practice of getting away in November. He travelled very widely, and from 1880 onwards made half a hundred voyages to all parts, from Ireland to South Africa and the sources of the Nile, and east and west over the Old and New Worlds. In 1886 antiseptic surgery had gained ground in London, but the carbolic spray was regarded with disfavour. Lawson Tait and other abdominal surgeons did not adopt such antiseptic methods, the carbolic acid being an irritant and harmful to the peritoneum. They used boiled water or aseptic methods, and Sutton followed. He soon got into trouble with his colleagues for his zeal for abdominal surgery, especially for pelvic operations on women. His observations on the reproductive organs of mammals led to a paper on cysts of the ovaries in animals, which attracted the attention of Alban Doran and Lawson Tait. In 1892 he received the Jacksonian Prize of the Royal College of Surgeons for a dissertation on diseases of the ovaries and uterine appendages. In 1896 the Chelsea Hospital for Women was under a cloud, and after inquiry and energetic action to reform its methods Sutton was appointed assistant surgeon, and full surgeon six months later. This gave him more scope for his abdominal operations, and he disarmed public opinion by opening his theatre to professional men and women and by publishing his results widely in the journals. A characteristic comment on this rather stormy period of his life is:

"No great change has ever been wrought in Religion, Medicine, or Science without serious opposition. Surgeons in this respect are no better than the silversmiths of Ephesus. I may have won some credit for helping to put this class of surgery on a sound footing after dragging it out of obloquy which at one time threatened to overwhelm it."

He adopted the name of Bland-Sutton by deed poll in 1899 because a medical practitioner of the same surname and initials had opened a shilling dispensary close to his home, and some people thought that this was his own venture. He took no notice of this confusion of names until he was rung up at night for cheap midwifery.

Bland-Sutton was very popular as a lecturer to students and graduates, never lecturing for more than three-quarters of an hour. As a public speaker at medical dinners and elsewhere he was much in demand, his oratory being spiced with humour and homely turns of phrase, with apt illustrations and unexpected similes. For the more formal occasions he took Sir James Paget as a model, committing the text of his address to memory beforehand. In 1905 he was elected full surgeon to the Middlesex Hospital, retiring in 1920. From 1910 to 1927 he served on the Council of the Royal College of Surgeons of England. He had been Erasmus Wilson Lecturer at the College in 1885–7, Bradshaw Lecturer in 1917, Hunterian Orator in 1921, and in 1923 was elected President; this office he held for three years, and during its tenure was created a baronet, having been knighted in 1912. He was chosen as first President of the Association of Surgeons of Great Britain and Ireland on its foundation in 1919, and as a tribute to his work for the science and art of surgery his portrait in colour, reproduced from the picture by John Collier at Lincoln's Inn Fields, was published in the *British Journal of Surgery* to commemorate his seventy-fifth birthday.

In *The Story of a Surgeon* (1930) he gave an account of his own beginnings, aspirations, climbings, and successes—a very diffuse, very readable story by a man who always knew what he wanted and how to get it. Several of his best addresses were published as *Selected Lectures and Essays* (1920). In the preface to this book he says:

"I taught almost daily in the Middlesex Hospital Medical School from 1880 to 1920. Now like a reaper binding his sheaves I venture to collect a few lectures and essays and present them to the old students. They may serve as reminders of the hours we spent together studying the dead with the hope of aiding the living."

The first thirteen chapters of this collection represent a fourth edition, with rearrangements and additional matter, of his little book on *Ligaments*, which first appeared in 1887. A score or more different subjects are dealt with, some of general interest from the Bible and the Apocrypha, as well as others of pathological and surgical interest. These essays and lectures display a wide knowledge of general literature and a power of apt quotation, and are most interestingly illustrated with over a hundred figures. Of much the same flavour is *Orations and Addresses* (1924), a book very characteristic of the man, revealing his varied knowledge in the spheres of human and comparative anatomy, morphology, and pathology. He tells us that while waiting for practice, like John Hunter he taught human anatomy for capital and comparative anatomy for interest. The chief paper so reproduced is the Hunterian Oration. Here is brought to light the remarkable similarity of scientific inquiry which possessed the two men, for probably no other surgeon since Hunter's time had so extensive a range of curious interests in the animal creation generally or in the collection of freaks. Bland-Sutton's intense love of animals made him a frequent visitor to the Zoological Society's Gardens, and for many years he was a general honorary consultant on diseases of the birds, beasts, and reptiles there. There was scarcely a paper or address by him on human anatomy or ailments but he managed to work in something apropos and interesting about the lower forms of animal life. In 1917 he was appointed a War Office representative with the rank of lieutenant-colonel for collecting pathological specimens illustrating gunshot injuries, which were finally entrusted to the Royal College of Surgeons. The collection was described in the *British Journal of Surgery* (1919) in a most interesting paper. The excellent preparations, with careful clinical histories, were a very valuable accession to the Hunterian Museum.

Of his other writings must be mentioned *The Diseases of Women*, a handbook for students and practitioners, first published in 1897 in collaboration with the late Arthur Giles; and *Tumours, Innocent and Malignant* (1893). Eight years were occupied in collecting material for this latter work, the underlying idea of which was to classify tumours on an embryological basis and to illustrate them by comparative pathology. It was his most successful book, and reached a seventh edition in 1922. Princess Marie Louise, when furnishing the Dolls' House for Queen Mary, asked him to write a book on *The Principles of Doll Surgery* (1922) for the library. His versatility was quite equal to the task. It is written in the style of a work on operative surgery, and contains 74 pages 1¼ by 1 inch in size. Each page contains an average of fourteen letters engrossed in antique script, with the initial of each chapter illuminated as in an old missal.

Sir John Bland-Sutton was President of the Medical Society of London in 1914, of the Royal Society of Medicine in 1921–2, and of the International Cancer Conference held in London in 1928. He joined the British Medical Association in 1884, was honorary secretary of the Section of Surgery at the London Meeting of 1895, and vice-president of the same Section when the Association met again in London in 1910. He received the honorary degree of LL.D. from the Universities of Aberdeen, St. Andrews, Birmingham, Glasgow, and Leeds, the D.Sc. from Toronto, the M.Ch. from Trinity, Dublin, and the M.D. from Bordeaux. In 1905 he constructed at the back of his house (now demolished) in Brook Street, W., a complete replica, reduced by one-third, of the Apadana, or hall of honour, built by Darius I for his palace at Susa. In this wonderful dining court, with its columns and enamelled bricks, Sir John and Lady Bland-Sutton dispensed a generous hospitality.

Sir ALFRED WEBB-JOHNSON writes:

With the passing of a man of such remarkable personality as John Bland-Sutton it is fitting that a word should be written of those sides of his life and character which may not find place in a more formal appreciation.

Bland-Sutton was privileged to live to his eighty-second year. When he first realized that his time of active operative work was finished he was inclined to regard it as no privilege to live on; but as he got used to the idea of having laid aside his working tools he began to appreciate that he had been vouchsafed a great blessing. He had the happiness of seeing those works to which he had set his hand established on a firm basis and bearing rich fruit. He had the special joy of seeing his hospital recognized as one of the greatest hospitals and medical schools and research institutes in the kingdom. He saw the Royal College of Surgeons going from strength to

strength and embarking on intensive scientific research, which was always so near to his heart. He saw his old hospital completely rebuilt; he read with pride the scientific papers published by workers in the research laboratories which he built and which bear his name; and he saw the completion of the exquisite hospital chapel, which had always been his special care. He was well enough last year to attend the ceremonies in connexion with the opening of the new Middlesex Hospital and the centenary of the medical school, and listened with pride to the tributes to the large part he had played in bringing the hospital and medical school to their present proud position.

Many of Bland-Sutton's friends marvelled that with his apparently frail physique he should have been able to lead such an active life and yet be spared to live to over eighty. And it is indeed remarkable when we call to mind that in order to satisfy his insatiable curiosity and in order to observe many of the inhabitants of zoological collections in their natural haunts he travelled all over the world. He ventured into Arctic snows and under tropical suns, and even undertook a hunting expedition to East Africa. His urge was to study men, beasts, fishes, birds, and plants, and he took little interest in the hunting, except to secure something for the next meal. It was not my privilege to know him until twenty-eight years ago, when his reputation was world-wide not only as an operating surgeon but for his work and writings on anatomy, pathology, and surgery. The broad biological outlook which he maintained from first to last has led to his being recognized as the nearest approach to his hero, the immortal John Hunter.

Bland-Sutton was a prolific writer and lecturer. He always had something to set forth, and had the gift of setting it forth in spoken or written words. Writing and lecturing were a joy to him, and he spared no pains or expense in making his lectures and writings attractive and readable. His lectures were generously illustrated by diagrams; his books were lavishly illustrated by the most exquisite wood engravings. He had no use for lantern slides for his lectures or for photographs for his books. He maintained that the points which the lecturer or writer wished to emphasize and expound could not be made clear in photographs. He was never afraid to admit that he had been in the wrong, which he regarded as but saying that he was wiser to-day than he had been yesterday. I have surprised him in his study at his beautiful Brook Street house kneeling before the fire watching the flames consume copies of one of his books. On asking him the reason for the holocaust he replied that he was no longer willing to propagate error.

In the more intimate sphere many will recall with gratitude and admiration the princely hospitality he offered both in his private capacity and officially, when holding office as president—whether of a Branch of the British Medical Association, the Medical Society of London, the Royal Society of Medicine, the Royal College of Surgeons, the Association of Surgeons, or an International Congress on Surgery or Cancer. His interests were wide, and he had a large circle of friends. At his house besides men of science one met leaders in all walks of life: artists like Frampton and John Collier; playwrights like Pinero, Sutro, and Henry Arthur Jones; players like Charles Wyndham and Fred Terry, Julia Neilson, Phyllis Neilson-Terry, and Irene Vanbrugh; authors like Kipling; judges like Sir Samuel Evans; journalists like Gwynne of the *Morning Post*—all his close and intimate friends. In all his activities he had the staunch and loyal support of Lady Bland-Sutton, who has tended him so devotedly in his later years. They were indeed happy, complementary to each other, and real helpmeets in every way.

Bland-Sutton was staunch in friendship. His love of entertaining found expression in his later years in inviting a few intimate friends to his lovely house on the cliffs at Kingsdown, where he delighted in the activities of the Channel, the great variety of birds in the bird sanctuary he created, the marvels of the heavens, and the joys of his unique garden. In these surroundings he was indeed a good companion, and hardly a minute would pass without his imparting some illuminating item of information. I doubt not that I voice the feelings of all his friends when I express real and heartfelt gratitude that this very remarkable man and lovable personality passed our way.

Mr. VICTOR BONNEY writes:

I desire to add my tribute to the memory of the great surgeon and remarkable man who has just passed away.

My memories of Sir John Bland-Sutton extend back to 1891, when I entered the Middlesex Hospital Medical School. Mr. Sutton, as he was then called, was the junior assistant surgeon and senior demonstrator of anatomy. He was a small pale man with a dark moustache. Among us younger students he was chiefly known as a brilliant teacher of anatomy, but there was talk, too, of remarkable operative dexterity and courage. Our medical education had not then proceeded far enough to appreciate or even to know about the wealth of anatomical and pathological work which he had already accomplished. In those days a junior assistant surgeon had very little opportunity to distinguish himself in the operating theatre except during the holiday months, and it was not until he was appointed surgeon to Chelsea Hospital for Women in 1895 that Sutton got his chance.

It was on his advice that in 1898 I went to Chelsea as resident officer, and by that time he was the "star turn" there. The surgical treatment of uterine fibroids was then in process of development against considerable opposition from certain quarters. Assisted by the late Arthur Giles, Sutton operated every Monday afternoon, and the theatre was crowded with surgeons from all parts of the world. He had a remarkable power of infusing enthusiasm into those who served under him, and all of us worked with a will to make the operations go off as perfectly as possible. It was the beginning of that "team work" which is now an established practice in all first-class surgical centres. In the face of his brilliant dexterity and successful results the opposition to the surgical treatment of fibroids rapidly died down, and to him more than to any other surgeon in this country is due the credit of changing professional opinion in the matter of these tumours. But he did more than this, for he raised the status of abdomino-pelvic surgery out of the narrow rut of specialism in which it threatened to stick and created the gynaecological surgeon in place of the gynaecologist.

In appraising his place as a great operator it is necessary to have regard to the state of surgery at the time when he entered the calling. The new territory which Lister's discovery had opened to surgeons was being cautiously explored; antisepsis was still in the carbolic spray stage; steam sterilization was unknown; catgut was unsafe; silk, silkworm-gut, and silver wire were the popular ligature materials; the most advanced surgical attire was a carbolized mackintosh apron over ordinary clothes; and the idea of rubber gloves was nearly twenty years distant. Operating theatres were poorly equipped and a large proportion of surgical operations were carried out in the houses of the patients under very disadvantageous conditions. There was no system and very little co-

ordination. As a result surgery with very few exceptions was laborious, slow, and timid. Bland-Sutton perceived that for operative work to be reasonably safe under such conditions simplicity and speed were essential, and his results justified his opinion. He reduced the number of instruments he used to the very minimum, six pairs of Spencer Wells forceps, a dissecting forceps, a pair of scissors, a scalpel, half a dozen needles, and a couple of reels of silk thread sufficing him for any operation. He used antiseptic solutions very sparingly, especially on his own hands, maintaining, much in advance of his time, that they merely made the skin rough and more prone to harbour infection. There can be no doubt that at the outset of his career his views and practice as regards operating were largely influenced by Lawson Tait, of whom he always spoke with great respect. He was exceedingly quick and dexterous yet light-handed, and his determinations were taken with unfailing rapidity and carried out with unfaltering resolution. To the last day of his surgical life tedious, prolonged operations had no interest for him, and indeed he never entered upon them.

Those who are old enough to know, and those who though young can yet visualize, the operating theatre of the 'eighties can appreciate how much our art is indebted to him. Since this present century began surgery has undergone a profound and advantageous elaboration, purchased, however, by the loss to the surgeon of some of that self-reliance which was so striking in Bland-Sutton at the operating table. The conditions under which surgeons now work mask this loss ; but there are occasions still when the fate of the patient depends on this great quality alone, and for that emergency every surgeon should keep within himself something of the spirit of Bland-Sutton.

Professor GREY TURNER writes:

The death of Sir John Bland-Sutton removes a most stimulating personality who, by his writings and by his adroit work in the operating theatre, did a great deal to encourage the younger generation of surgeons of his time.

I remember that it was away back in the late 'nineties in my undergraduate days that Professor Frederick Page of Newcastle-on-Tyne first told me about Bland-Sutton and recommended that I should read his book on tumours. Of course it was true that even at an earlier stage I had read his little book on ligaments, which opened up a new world to us in anatomy and made us think of the possibilities suggested by the novel and wider outlook that he put forward in his interpretation of what one had previously looked upon as rather dull things. The book on tumours was at once arresting and fascinating, and I never read any story with greater avidity. About that time he kept up a correspondence with Frederick Page concerning the treatment of the placenta in advanced cases of ectopic gestation, and I remember with what glee we were told about those letters and how much we looked forward to hearing about what was really a mild controversy. At that time and for some years afterwards Mr. Sutton, as he then was, contributed regularly to the popular *Clinical Journal*, and as I recall those days it brings to my mind the eager anticipation with which the appearance of the journal on Friday nights was awaited just in the hope that it would contain something from his facile pen.

In 1900, as a mere fledgling, I came to look round London armed with introductions from my old teacher Rutherford Morison, and I shall never forget the warm reception which Sutton gave me. He not only invited me to see his work at Chelsea, but he used to ask me to turn up at his house and to accompany him in his victoria with a pair of beautiful grey horses, and the drive through the park over to Chelsea was a never-to-be-forgotten experience. His conversation was like his writings, except that he used more of those quips which the writer of the memoir in the *Times* has picked out as characteristic. They would be difficult to reproduce in writing, but they always conveyed some lesson, and I remember many of them as if they had just been uttered yesterday. At that time he always had good operation lists, and it was a great treat to be a witness of his dexterity in the abdomen. His London accent, of which I am quite sure he was a little proud, seemed to heighten the point of many of his remarks. I remember on one occasion he told me that he had been born within the sound of Bow Bells, but he added, "Thank God, within easy reach of the green fields and the country." But visits to his theatre did not represent the whole of his thoughtfulness to an extreme junior, for he invited me to his house, then in Queen Anne Street, and later on to Brook Street, where it was a great privilege to be a guest at some of the wonderful entertainments which were there staged.

His enthusiasm and reverence for Hunter were very remarkable, as is well illustrated by the following incident. Some years ago I was able to purchase three of John Hunter's letters, and as I thought that one of them would be of particular interest to Sutton I sent him a transcript. By return came one of his characteristic notes in a clear, legible hand telling me how much obliged he was for the chance of being made familiar with the Hunterian letter, and he added, "When you come to town be sure to bring it and show it to me, *but don't trust it to the post.*"

Later I saw a good deal of his work at Middlesex, and each time there was something which impressed the visit on my mind and made me feel that it had been worth while. As others have said, his technique perhaps lacked finesse and in the early days of the rubber glove he certainly treated them with a certain amount of levity, but nevertheless he was wonderfully skilful and most adept in emergency, and I know that his results were remarkable.

I feel very grateful to him not only for his stimulating friendship over a long period of years but for his help in other ways. He it was who encouraged me to take an interest in the College of Surgeons and to go up for the Council, and I am quite sure that it was a very genuine pleasure to him when I was finally elected. He loved the Hunterian Museum and everything to do with it, and his work on the Museum Committee was a great joy. When acting in that capacity he took the trouble to write me a delightful letter of thanks for some specimens I had presented. Such considerate kindness, shown on so many occasions, revealed the real character of the man and is not easily forgotten.

[The photograph reproduced is by Elliott and Fry Ltd.]

R. F. C. LEITH, M.B., F.R.C.P.ED.

The death took place, at his residence in North Berwick on December 14th, of Emeritus Professor Robert Fraser Calder Leith, who retired in 1919 from the chair of pathology and bacteriology in the University of Birmingham. He was born in 1854, and after graduating M.A. with honours at the University of Edinburgh in 1882 and B.Sc. in 1883, he took up the study of medicine and graduated M.B., C.M. with first-class honours in 1885. He had also for a short time studied for the Scottish Bar, but abandoned a career in law for one in medicine. During his period as an undergraduate he took much interest in student affairs, and was president of the

Students' Representative Council and of the Royal Medical Society in Edinburgh. After holding a post as tutor in clinical medicine in Edinburgh Royal Infirmary he took up the subject of pathology and became pathologist to that institution, and from 1892 held the post of lecturer in pathology at the School of Medicine of the Royal Colleges in Edinburgh. He joined the Royal College of Physicians of Edinburgh as a Member in 1891, proceeding to the Fellowship in 1892.

In 1899 he was appointed professor of pathology and bacteriology at Birmingham University, a post which he held until 1919. During his active years Professor Leith had been examiner in pathology and bacteriology for the Indian Medical Service and for the Universities of Cambridge, Bristol, Glasgow, and Sheffield, as well as for the Royal College of Physicians of Edinburgh and the Royal College of Veterinary Surgeons. He was celebrated as a teacher and as a pathologist, and his publications included many contributions to medical and scientific journals. He may be described as a great all-round man, for in his Edinburgh days he was a keen tennis player in the celebrated Whitehouse Tennis Club, and he was also a member of the polo club at Murrayfield and of the Alpine Club. When he retired from the chair at Birmingham in 1919 he spent the winter months regularly at Cannes and the summer at Gullane, Scotland, where he was a well-known figure on the golf links. Professor Leith was also a well-known collector of china, in which he was regarded as a connoisseur, and some years ago he divided his valuable collection of china between Birmingham Art Gallery and the Royal Scottish Museum in Edinburgh. He was a man of many friends, and his death will be widely regretted. He joined the British Medical Association in 1888, was vice-president of the Section of Pathology at the Toronto Meeting in 1906, and president of the same Section at the Birmingham Meeting in 1911. In 1934 he made a donation to Birmingham University of £1,000 as foundation for a prize in pathology. His portrait hangs in the great hall of the university at Edgbaston.

SIR JOHN ROBERTSON

Dr. JAMES F. BRAILSFORD writes: With the passing of Sir John Robertson one of the great pioneers of preventive medicine has left us. Only those who worked with him can appreciate how devoted and untiring he was in this labour. There was no sphere of public health work in which he did not take a leading part, and we owe to him a great measure of the success and benefit which this work has achieved. Until his death he actively discharged his duties as professor of hygiene and public health at the University of Birmingham, a post which he had held for nearly a quarter of a century. He organized and took a large part in courses of training for all branches of public health service. His popular lectures secured the willing co-operation of all sections of the public.

He was a great teacher, who loved his work and inspired his students with a desire to obtain the goal which he so ardently desired and for which he so faithfully and unsparingly worked. But above all he was a kindly man, possessed of a charming old-world modesty and courtesy of manner which endeared him to all. Easy of approach to all and ready at all times, no matter how sorely pressed by his manifold duties, to give his sympathetic hearing and advice, there must be many of us who owe to him not only advice in the planning of but also much support in our early careers. We mourn his loss and extend our sympathy to his wife and children. In the words of the leader in the *Birmingham Mail*: "No one can measure the boon which he conferred upon the community. His memory will be preserved on the tablets which record the names of great public servants, professional and voluntary, for his work was at no time and in no wise bounded by the limits of his official responsibilities, great though these were."

We regret to announce the death of Dr. EDWARD JAMES LLOYD, for many years a leading practitioner at Bangor, North Wales. He was born in 1850, and studied medicine at St. Bartholomew's Hospital and Aberdeen, graduating M.B., C.M.Aberd. with honours in 1873. He proceeded M.D. in 1875, and became M.R.C.S.Eng. in 1877. Immediately after qualifying he acted as civil surgeon in the Transport Service of the Ashantee Expedition. In later life he reached the rank of surgeon-colonel to the 1st Cheshire and Carnarvonshire R.G.A.Vol., receiving the Volunteer decoration. Dr. Lloyd was for twenty years surgeon to the Carnarvonshire and Anglesea Infirmary, and on retirement from the active staff was elected consulting physician. He joined the British Medical Association in 1873 and was president of the North Wales Branch in 1888. He was also a past-president of the Menai Medical Society. The funeral, at Bangor on December 18th, was largely attended.

We regret to record the death in London on December 22nd, 1936, of Dr. EDWARD FULLER MARTIN of Weston-super-Mare, in his eightieth year. Dr. Martin was the son of the late Dr. Edward Martin, and was born at Bristol in 1857. He received his medical education at Edinburgh University, where he graduated M.B. in 1879 and received the diploma of membership of the Royal College of Surgeons of England, and in 1895 he proceeded to the M.D. and C.M. degrees. Dr. Martin settled in general practice in Weston-super-Mare, becoming surgeon to the hospital there, and on retirement from the active staff in 1927 was elected consulting surgeon. He had been a member of the British Medical Association since 1880.

The Services

PARKES MEMORIAL PRIZE, 1936

Major E. F. W. Mackenzie, O.B.E., *M.C.*, R.A.M.C., has been awarded the Parkes Memorial Prize for 1936 for his investigations into the ammonia-chlorine process of water purification in the field, coupled with research carried out by him in connexion with food supplies in India. By this work Major Mackenzie has achieved much in the advancement of military hygiene. The prize is awarded annually to the officer who is considered by the committee to have done most to promote the advancement of naval or military hygiene by professional work of outstanding merit, and is open to medical officers of the Royal Navy, the Army, and the Indian Army, with the exception of the professors and assistant professors of the Royal Naval Medical College, Greenwich, and of the Royal Army Medical College, London, during their term of office.

GREENWICH HOSPITAL PENSION

A Greenwich Hospital pension of £50 a year has been awarded to Fleet Surgeon C. S. Facey, R.N., retired, in the vacancy created by the death of Surgeon Captain P. E. Maitland, R.N., retired.

DEATHS IN THE SERVICES

Lieut.-Colonel JAMES TIDBURY, O.B.E., R.A.M.C. (retired), died at Woking on December 22nd, aged 84. He was born on July 4th, 1852, was educated at Queen's College, Cork, and at University College, London, and graduated M.D., M.Ch., and L.M. of the Queen's, later the Royal, University of Ireland, in 1877. Entering the Army as surgeon on February 3rd, 1878, he became lieutenant-colonel after twenty years' service, and retired on June 25th, 1898. He served in the Egyptian campaign of 1882, was present at the action of Tel-el-Kebir, and received the Egyptian medal and the Khedive's bronze star. While on the retired list he was employed at Winchester. He rejoined for service in the war of 1914–18, and early in the war was employed in recruiting and later was in charge of the Woking Military Hospital.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on December 19th, 1936, the following medical degrees were conferred:

M.D.—E. W. P. Thomas, J. J. Keevil.

M.B.—A. G. V. Aldridge, J. H. Conyers, C. W. C. Karran, I. C. Robertson.

B.CHIR.—*S. J. R. Reynolds, E. E. Pochin, H. S. Mellows, J. Woodrow.

* By proxy.

The following candidates have been approved at the examination indicated:

THIRD M.B.—*Part I (Surgery, Midwifery, and Gynaecology):* C. D. Anderson, D. A. P. Anderson, E. F. Aubert, A. M. Barry, F. G. A. Beckett, A. G. Bellamy, I. G. Braddon, A. S. J. Bradford, H. A. Brook, C. T. A. Burgess, J. H. Burkinshaw, R. D. Caton, N. F. Coghill, F. S. Cosh, F. M. Crawshaw, A. C. Cunliffe, S. B. Darbishire, C. M. Dickins, E. S. Dismorr, R. Edwards, J. S. Ellis, E. M. Evans, J. N. Fell, G. M. Fleming, E. B. French, J. C. Gilson, C. W. C. Gough, I. A. Guest, H. Haigh, J. N. Horne, C. W. Hutt, N. D. Jekyll, W. H. R. Jeremy, P. Kidd, G. J. G. King, A. P. Kitchin, J. I. H. Laurie, A. D. Ledward, R. G. M. Longridge, T. P. H. McKelvey, R. W. Markham, A. H. Masina, R. M. Miller, B. D. Molesworth, R. C. Neville, L. B. Paling, A. K. Pardhy, M. T. Parker, E. A. Pask, G. O. Richardson, A. Rothwell, C. G. Scorer, C. J. S. Sergel, K. M. M. Sheldon, A. W. Stewart, C. E. Watson, R. W. Watts, R. R. Wilson, L. A. C. Wood, G. H. Wooler, G. E. Yardley. *Women:* M. B. Billington, G. M. S. Caldwell, C. E. Peaker. *Part II (Principles and Practice of Physic, Pathology, and Pharmacology):* A M. Barry, K. E. Bond, R. S. Castle, K. W. Donald, F. S. A. Doran, G. W. N. Dunn, J. S. Ellis, A. B. Evans, D. G. Freshwater, E. A. G. Goldie, T. E. Johnson, R. G. M. Keeling, O. C. Lloyd, T. E. S. Lloyd, G. E. Loxton, H. C. Maclaren, C. McNeil, H. K. Meller, A. J. Moon, W. S. Nutt, W. V. Owen, B. C. M. Palmer, A. M.-M. Payne, W. L. Petter, E. H. Platts, G. Rigby Jones, V. C. Robinson, K. W. B. Rostron, A. Rothwell, H. Sirota, L. W. Spratt, R. H. Taylor, C. E. Watson, A. S. Wigfield, J. Woodrow. *Women:* M. E. Barnard, A. F. M. Briggs, F. Pollecoff.

The Vice-Chancellor gives notice of the forthcoming appointment of a university demonstrator in pathology, whose duties will begin not earlier than April 1st. Particulars of the stipend and duties may be obtained from Dr. F. J. W. Roughton, Physiological Laboratory, Cambridge.

UNIVERSITY OF LONDON

V. S. Mangalik has passed in the examination for the Academic Post-Graduate Diploma in Clinical Pathology, and P. J. B. Murphy in the examination for the Academic Post-Graduate Diploma in Medical Radiology.

UNIVERSITY OF BIRMINGHAM

The following degrees were conferred at a congregation held on December 18th, 1936:

M.B., CH.B.—G. S. Adams, J. H. Austin, Margaret B. Dow, Lilian M. Fogarty, A. H. Khan, J. Lockley, G. W. Phillips, D. Senzer.

UNIVERSITY OF BRISTOL

The following candidates have been approved at the examinations indicated:

M.D.—H. E. Pearse.

FINAL M.B., CH.B.—Coralie W. Rendle-Short (with distinction in obstetrics and public health), L. Schnipelsky, E. Want. *In Group II (completing examination):* Ursula G. Hewitt.

UNIVERSITY OF MANCHESTER

The following appointments have been made: *Lecturers in Surgery:* H. H. Rayner, M.B., Ch.B., F.R.C.S., W. H. Hey, M.B., Ch.B., F.R.C.S., J. P. Buckley, M.D., M.S., F.R.C.S., W. R. Douglas, *M.C.*, M.B., Ch.B., F.R.C.S., A. H. Southam, M.D., M.Ch., F.R.C.S., D. McK. Sutherland, M.D., F.R.C.S., A. Graham Bryce, M.D., D.P.H., F.R.C.S., R. L. Newell, M.D., F.R.C.S.; *Clinical Lecturer in Dermatology:* P. B. Mumford, M.D., F.R.C.P.; *Lecturer in Regional Surgery:* R. L. Newell, M.D., F.R.C.S.; *Lecturer in Medical Ethics and Conditions of Medical Practice:* Lawrence Kilroe, M.D.

The following candidates have been approved:

FINAL M.B., CH.B.—*Part II:* Beryl A. Barlow, Helène E. K. Booth, Muriel J. Brayshay, Violet Cohen, B. Flacks, J. A. Herd, C. B. Holland, V. T. Lees, A. E. Martin, W. S. Parker, A. Shashoua, H. B. Slater, A. M. L. Smith, J. Starkie. *Part I:* L. S. Anderson, L. Ballon, R. S. A. Beckett, C. D. Coe, J. H. Ferguson, W. S. Holden, R. B. Hollos, R. Jackson, G. B. Locke, J. R. Monks, D. A. F. Shaw.

THIRD M.B., CH.B.—*Pathology and Bacteriology:* N. Altham, J. N. Appleton, Muriel I. R. ApThomas, H. B. Austin, T. M. Brand, W. W. Burnett, T. E. A. Carr, J. E. Coates, A. E. David, D. B. H. Dawson, T. B. S. Dick, A. M. Dickson, G. Garmany, K. Harrison, Kathleen M. Henderson, A. G. Heppleston, C. P. Heywood, Barbara M. Jessel, F. A. Langley, N. Levy, L. Linnell, D. Longbottom, Jean Mason, J. C. Mellor, A. Morgan-Jones, *S. Mottershead, *T. H. Norton, Mary B. Oakden, Lilian P. Parry, J. K. Rowson, E. Saunsbury, M. R. Tomlinson, T. B. Whitehead, W. W. Wilson, Frances T. Wright. *Pharmacology:* Peggy Anderson, G. T. Ashley, T. G. Barlow, D. Bolchover, Irene M. Bower, Frances M. Bullough, R. Cocker, E. Consterdine, G. R. Crawshaw, Barbara H. Fiddian, J. H. Gifford, R. T. Grime, Joan Halstead, C. Hamwee, P. Haslam, Hannah Horton, W. L. R. Kenyon, J. Latham, Joyce Leach, E. Lee, *A. D. Leigh, R. A. Martin, Asa Mills, *M. D. Milne, A. S. Ogden, M. J. Parsonage, J. R. Platt, T. H. Redfern, J. C. A. Renshaw, E. Ridehalgh, W. E. Rigby, G. G. Robertson, B. Roditi, E. S. Rogers, M. S. Rowley, L. D. Rutter, Barbara M. Statham, F. W. Taylor, A. F. Williams, R. M. Winston.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—*Part II:* G. Williamson.

* With distinction.

UNIVERSITY OF DURHAM

The following degrees were conferred at a Convocation held in the College of Medicine on December 19th, 1936:

M.S.—H. B. L. Levy, T. Moore, L. M. Snaith.

M.B., B.S.—J. N. Alexander, Rachel Birk, Mary Buchan, W. S. Gale, R. M. Gray, H. Halson, B. D. Houston, L. Ison, G. S. Michelson, Margaret L. Osborne, E. V. Parker, E. D. Robson, J. W. G. Weddle, H. D. Welch, G. A. Wilthew.

D.P.H.—A. J. Muir, H. J. Peters, A. Swindale.

UNIVERSITY OF LEEDS

The annual report of the University, presented at a meeting of the Court held on December 23rd, 1936, records that during the past educational year the number of full-time students in attendance during the year was 1,663, the highest figure attained since the institution of the University, and an increase of exactly 1,000 above the number in attendance in the last year before the great war. In the Faculty of Medicine it was decided that as soon as possible Readers in Medicine and in Surgery should be appointed, so that the University might, by the appointment of whole-time clinical investigators, make its contribution to what has come to be one of the most promising methods of developing medical knowledge.

UNIVERSITY OF EDINBURGH

A graduation ceremonial was held in the Upper Library Hall on December 18th, 1936, when the following degrees were conferred:

M.D.—J. S. Brown (*in absentia*), ‡J. Bryant, *C. W. Clayson, A. D. Frazer, A. J. Galbraith, C. P. Hay, †I. C. Macdonald, Surgeon Lieutenant R.N., J. Meyer, A. M. Simson, Major, R.A.M.C. (*in absentia*), R. C. Speirs (*in absentia*), ‡J. M. M. Steven, R. H. Tait, W. H. F. Wilson.

PH.D. (*Faculty of Medicine*).—G. P. Matthews (*in absentia*).

M.B., CH.B.—B. G. H. Balfe, W.-F. E. Baumann, R. C. Bellingham, N. R. Butcher, E. Christianson, W. Drummond, J. E. Farren, I. Ferguson, B. N. S. Gillette, M. Hurwitz, R. W. Irving, A. F. Maccabe, R. B. M'Martin, Frances I. B. Macmillan, H. Miller, Evangel H. Murcott, Jane K. Murray, L. Nandkeolyar, E. G. C. Orchard, M. B. Parhad (*in absentia*), W. Paterson, J. G. Paton, H. W. Porter, K. Ll. Pringle, J. A. F. Roberts, A. St. C. Robertson, D. N. S. Robertson, I. M. Shahin, V. J. R. Sheridan, A. Stadion, N. B. Stewart, D. A. Thomas, J. K. Thomson, S. Viravaidaya, R. M. White.

* Awarded gold medal for thesis. † Highly commended for thesis. ‡ Commended for thesis.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—G. F. C. Harvey, G. G. Sahasrabuddhe, J. S. Wood.

MEDICINE.—J. T. Boocock, J. S. Wood.

FORENSIC MEDICINE.—J. S. Wood.

MIDWIFERY.—J. R. Audy, J. M. Lea, J. E. R. Palmer, O. Rochlin.

The diploma of the Society has been granted to G. F. C. Harvey, J. M. Lea, and J. S. Wood.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

A meeting of the Royal College of Surgeons of Edinburgh was held on December 17th, 1936, when Mr. Henry Wade, President, was in the chair. The following candidates, having passed the requisite examinations, were admitted Fellows:

G. R. Butterfield, C. E. Thomas, A. L. Allen, C. P. Allen, W. H. Belford, D. L. C. Bingham, D. D. Campbell, J. P. Campbell, N. Chakravarty, C. D. Clark, G. D. Falconer, N. F. Greenslade, N. Heath, F. S. M. Heggs, C. P. Hudson, J. R. S. Lahz, D. K. Lennox, J. S. Lyle, A. Mukerji, B. F. Macfarlane, A. G. Palin, C. E. Roberts, R. D. Stronach, T. Wooldridge.

NATIONAL UNIVERSITY OF IRELAND

UNIVERSITY COLLEGE, CORK

The following candidates have been approved at the examinations indicated:

M.D.—J. G. O'Sullivan.

M.B., B.CH., B.A.O.—B. J. O'Driscoll (first-class honours), T. J. Conran, M. J. Downing, D. Lehane, M. F. Magnier, P. F. O'Connor, J. W. Reade, Margaret M. M. Reynolds. *Part I:* T. Sheahan. *Part II:* J. J. McCarthy, D. J. G. Maher Loughnan, P. L. O'Neill.

D.P.H.—R. T. Ahern, J. J. Hurley, T. J. Mullins, T. P. O'Connor. *Part I:* M. J. McCarthy (second-class honours), J. O'Herlihy. *Part II:* T. P. O'Connor, J. J. Hurley (first-class honours).

Medical Notes in Parliament

Parliament rose for Christmas on December 18th. On that day the Royal Assent was given to the Expiring Laws Continuance Act, the Trunk Roads Act, and the Public Order Act. The House of Lords stands adjourned till January 26th and the House of Commons till January 19th.

The Geneva Convention Bill was read a first time by the House of Commons on December 16th. Various orders consequential on the Government of India and Burmah Acts, 1935, have been approved by both Houses, and a message from the King was received by Parliament on December 16th which announced that effect would be given to these decisions.

The Earsdon Joint Hospital District Bill was read a second time by the House of Commons on December 16th. It has been decided that the Liverpool United Hospital Bill shall originate in the House of Lords.

Preparation of the Factory and Workshop Bill has reached an advanced stage, and the Home Secretary hopes to introduce it shortly after the Christmas recess. This will be a codifying and amending Bill.

Unemployment and Malnutrition

Mr. GEORGE HALL moved on December 17th that the Unemployment Assistance (Determination of Need) Regulations, so far as they involved reductions in existing allowances, should be suspended. He said the operation of the regulations affected 520,000 householders, or with their dependants 1,500,000 people. He quoted a person charged with the care of the health of a large urban district in South Wales, who said that 76 per cent. of the pregnant and nursing mothers attended the clinics in that district, and the majority of these mothers suffered from malnutrition. Debilitated children were seen at the clinics, and many women could not breast-feed their children owing to malnutrition. Of 270 children in the schools who received one meal a day 215 were still in a state of malnutrition, and of 812 receiving milk only 310 were normal.

Mr. BOOTHBY said medical and scientific opinion which was beyond reproach declared that 20 per cent. of the population was undernourished. Recruiting figures bore this out.

Mr. ERNEST BROWN said the Government had paid out this year from the employment exchanges nearly £80,000,000, of which nearly £40,000,000 was paid on the assistance side. In the past twelve months £80,000,000 had been paid in South Wales for benefit and assistance. Under the new regulations more than a third of the cases would get increases. The process of reviewing the cases was nearing completion, and no applicant had yet received a notice that his allowance would be decreased as the result of the new regulations. Mr. Hall's motion was rejected by 218 to 135.

Distress in the Highlands and Islands

Mr. ROBERT GIBSON opened a debate on December 16th on distress and depopulation in the Highlands.

Mr. MALCOLM MACMILLAN read a petition from inhabitants of a roadless district in Harris, who declared that "in cases of illness it is at least a matter of hours before the doctor can be brought, and if the patient has to be removed to hospital it means heavy labour for the bearers and unspeakable torture for the sufferer before the road-end can be reached." He instanced a confinement, during which one twin was born in Harris and the other several hours later in the town of Stornoway, whither the mother had to be carried over bad roads after enduring a boat journey. In the island of Scalpay there was only one nurse and no doctor. Outside Stornoway, Tarbert, and the few smaller towns of the Hebrides there was no communal water supply, and in North Uist the water was taken from dip-holes or small lochs fouled by cattle.

Mr. CASSELLS spoke on old and bad housing in the Highlands.

Mr. ELLIOT said that in the Highlands since 1919 over 6,000 houses had been built with State aid. Some 3,000 had been improved under the Rural Workers Acts, and the Department of Agriculture had made loans to 4,000 more persons for improvement of their houses. The adjusted death rate in the Highlands was about four-fifths of the death rate for Scotland as a whole. The sickness rate among the insured population was only 70 per cent. of that for the country as a whole. Infant mortality in the Highlands and Islands was far below that for the country as a whole—32 per cent. below. These were not the signs of a dying and decaying race. They were the signs of a race which had undergone and was undergoing hardships and required that its lot should be improved. The Highland population was susceptible to tuberculosis, but not so much in the Highlands as when the Highlander moved into the crowded cities. The Government intended to examine the problem further. The Scottish Development Council, in consultation with the late Secretary of State, had set up a Highlands Subcommittee. That subcommittee was now engaged on its investigations. He hoped that it would bring forward far-reaching proposals. They would receive the careful and sympathetic consideration of the Government.

Housing in Glasgow

Replying on December 18th to a discussion about housing in Glasgow Mr. ELLIOT said he did not think 2,000 houses would be built in Glasgow this year nor 3,000 next year. For some time past representations about unfit houses had been restricted till the mass of condemned houses had been dealt with. It was hoped within six months to resume the practice of making representations in regard to unfit houses. There was enough land in possession of Glasgow Corporation for two years' building at the rate of 6,500 houses a year. Scotland had nearly completed 200,000 houses, but had not yet made a serious inroad on the problem. In Glasgow 4,638 single-apartment houses were each occupied by four or more persons and 9,786 two-apartment houses were occupied by six or more persons, not taking account of children under 1 year. For Scotland as a whole 23 per cent. of the houses were overcrowded against 3.8 per cent. for England and Wales. In the last three years roughly 20,000 houses a year had been built in Scotland, but in the past year not much over 15,000, and only some 20,000 houses were under construction. That was not a record of which any Secretary of Scotland could be proud. There were 30,000 families in Glasgow living in conditions which provided only one water-closet for four families. The Government proposals in the new block grants would ease the financial position of local authorities. They had 40,000 families averaging more than three families to a water-closet and 10,000 houses condemned as unfit in Glasgow. There were 600 houses scheduled for demolition that had not been demolished. May and June would pass before the medical officer could begin to deal with other houses for demolition. That was not common sense, it was not business, it was not investment.

Gas-proofing Rooms.— Mr. GEOFFREY LLOYD announced on December 17th that the gas-proofing of rooms in private houses would be further dealt with in the handbook in course

of preparation for householders. As it was practicable to render rooms gas-proof, and as everyone in areas exposed to attack would be supplied with a respirator, it was not proposed to recommend that shelter-rooms in private houses should be fitted with air-filtration units.

Acetic Acid and Vinegar.—Sir KINGSLEY WOOD said on December 18th that he was inquiring into the death of a woman who had been sold acetic acid for a mineral water drink. Mr. KELLY, who put the question, suggested that steps should be taken to prevent the sale of acetic acid in its raw or diluted form as vinegar.

Phthisis in Southern Rhodesia.—Mr. MALCOLM MACDONALD, answering Mr. Creech Jones on December 18th, said he was not aware of any grounds for an investigation into the prevalence of phthisis in the Southern Rhodesian mines. There was a certain amount of phthisis among the miners, and the medical service took many steps to deal with it. Mr. CREECH JONES asserted that there was no institution for diagnosing these cases, and also that there was a high death rate in the native population. Mr. MACDONALD said he was unaware of the high death rate. He would consider any information Mr. Creech Jones could lay before him.

Comfort and Warmth.—Mr. S. F. MARKHAM asked whether, as the Departmental Committee investigating the warmth factor in comfort at work only carried out its investigations during the winter months, facilities would be given for an extension of these investigations to cover the spring and autumn months, with particular reference to the effects not only of warmth in comfort, but also of humidity. Mr. RAMSAY MACDONALD, in a written reply, said that this investigation was made on behalf of the Medical Research Council, under the direction of a committee jointly appointed by that body and by the Department of Scientific and Industrial Research. The committee had already recommended that the work should be extended along lines such as Mr. Markham suggested, and action would be taken accordingly.

Ambulance Work in Spain.—Mr. EDEN, answering Miss Eleanor Rathbone on December 16th, said the British Red Cross had sent no medical or nursing personnel to either side in Spain, and had not recognized the status of medical units sent out by voluntary efforts. An approach to the opposing forces was under consideration, with a view to persuading them to apply the provisions of the Convention in relation to the protection of Red Cross units. The British Red Cross had not asked the advice of the British Government in the matter. The Geneva Red Cross Convention, 1929, did not apply to the civil war in Spain. The British Government had not dissuaded anyone from taking humanitarian action.

Administration of Broadmoor.—Asked by Mr. McEntee about the administration of Broadmoor Criminal Lunatic Asylum on December 17th, Sir JOHN SIMON replied that members of the Council of Supervision appointed under Section 4 of the Criminal Lunatic Asylums Act, 1860, undertook this public service without remuneration. As regards the staff, there had been no recent increase in the salary of the medical superintendent apart from the consolidation of pay and bonus which applied to all Government servants. During the present year there had been increases in the remuneration of the other medical officers and of the subordinate staff.

Medical Treatment at Training Centres.—Asked by Miss Irene Ward on December 17th to establish a medical centre in connexion with the Government training centres, Mr. ERNEST BROWN replied that facilities at the local training centres which were being set up in the special areas in England and Wales would include provision of medical, dental, and optical treatment for men who could not at present be admitted to the Ministry's centres owing to minor physical disabilities.

Toll of the Roads.—Between January, 1931, and December, 1936, approximately 40,350 persons have been killed and 1,290,000 injured in road accidents recorded by the Ministry of Transport.

Medical News

A special conference of representatives of Local Medical and Panel Committees will be held at British Medical Association House, Tavistock Square, London, on Thursday, January 7th, at 2 p.m. The object of the conference is to consider the offer by the Minister of Health in regard to the remuneration for medical attendance on employed juveniles under 16 years of age. The full position is set out in a document printed in our *Supplement* to-day.

Lord Dawson of Penn has accepted the Presidency of the Association of Certificated Blind Masseurs.

At the meeting of the Illuminating Engineering Society to be held in the hall of the Institution of Mechanical Engineers (Storey's Gate, St. James's Park, S.W.) on Tuesday, January 12th, at 6.30 p.m., a paper entitled "Some Important Considerations in Colliery Lighting" will be read by Mr. J. W. Howell.

A meeting of the Pharmaceutical Society of Great Britain will be held at 17, Bloomsbury Square, W.C., on Tuesday, January 12th, at 8.30 p.m., when Dr. F. B. Parsons will give a lecture on "Anaesthetic Agents."

The 58/5 Western District Post Office Division (Prince of Wales's District) of the St. John Ambulance Brigade has arranged a course of five lectures on air raid precautions and first aid for gas casualties at Marylebone Town Hall on Fridays, at 8 p.m., from January 15th to February 12th. The fee for the course is 5s., and full particulars can be obtained from the divisional superintendent, 58/5 W.D.O. Division, St. John Ambulance Brigade, Western District Office, W.1.

The sixth International Congress of the Ligue Internationale contre le Rhumatisme will be held in the University of Oxford at the end of March, 1938, and the tenth anniversary of the foundation of the Bureau of the League will be celebrated at Bath. The subjects to be treated and the names of the reporters will be announced later. For further details application should be made to the Secretariat of the Ligue Internationale, Dr. J. van Breemen, Keizersgracht 489/491, Amsterdam.

The second All-India Obstetric and Gynaecological Congress will be held in Bombay about Christmas, 1937. The following are the subjects chosen for the main discussions: (*a*) toxaemia of pregnancy, (*b*) cancer of the cervix. The exact date and programme will be notified in due course from the headquarters of the Congress, Raj Bhuvan, Sandhurst Road, Bombay.

The seventh annual congress of the Societies of Medical Science of North Africa will be held at Algiers from March 22nd to 24th, when the subject for discussion will be typhus and pseudo-typhus. Papers will be read by Professor Burnet, director of the Pasteur Institute of Tunis, M. Blanc, director of the Pasteur Institute of Casablanca, MM. Donatien and Lestoquard of the Pasteur Institute of Algiers, M. Gaud, director of hygiene and public health at Morocco, M. Lemaire, director of the Health Office of Algiers, and Professor Costantini of the Algiers faculty of medicine. Further information can be obtained from the secretaries of the congress, Professor Senevet, Faculté de Médecine, Algiers, and M. Sarrovy, 47 bis, Rue d'Isly, Algiers.

At the forty-fifth Congress of French Surgery it was decided that the forty-sixth shall be held in Paris between October 4th and 9th, with Professor Grégoire as president and Professor Léon Imbert of Marseilles as honorary president. The three subjects to be dealt with at this congress will be the immediate and late effects of arterial embolism of the limbs, the physiology, pathology, and treatment of recent burns of the skin, and the treatment of closed fractures of the legs.

An extension of the pathological department of the Children's Hospital (King Edward VII Memorial), Birmingham, has been erected to the memory of Dr. Robert John Gittins, who rendered devoted service to the hospital as pathologist for four years, and gave his life in an unavailing attempt to save his son from drowning on October 7th, 1934. The extension will be opened on Wednesday, January 6th, at 3.30 p.m., by the Lord Mayor of Birmingham.

In 1926 a memorandum on fire precautions at voluntary hospitals was prepared by the Management Committee of King Edward's Hospital Fund for London. These notes have now been thoroughly revised with the help of Major C. C. B. Morris, chief of the London Fire Brigade. Their reissue gives an opportunity for hospital committees who have not recently made a close review of their anti-fire arrangements to take them in hand. The memorandum can be obtained from Geo. Barber and Sons, Ltd., 23, Furnival Street, E.C.4, price 6d. net, post free.

The French Minister of Public Health, having sought the opinion of the Academy of Medicine about the dangers of poisoning to which workers employed on the manufacture of impermeable clothing are exposed, the Academy has appointed a Commission of Inquiry.

For several years past, May 12th, Florence Nightingale's birthday, has been observed as Red Cross Day throughout the Empire and collections have been made on that day for various services of the British Red Cross Society. As May 12th is the date approved by the King for his Coronation it has been decided to hold the Flag Day on June 8th in view of the opinion expressed by the police and others concerned that great difficulties would attend a street collection on the day of the Coronation.

The fifteenth Benjamin Ward Richardson Lecture, on the supervision of the nation's food supply, was given last November by Lieut.-Colonel Gerald Leighton, formerly of the Department of Health for Scotland. The full text of the lecture has now been issued from the office of the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W.1.

Dr. Maude Abbott, the well-known authority on congenital heart disease, has received the doctorate of law of McGill University, where she was formerly professor in the faculty of medicine.

Dr. Donal Sheehan, at present lecturer in neurological anatomy at Manchester University, has been appointed senior professor of anatomy and director of the anatomical laboratories of the College of Medicine in the University of New York.

According to Dr. Tricot Royer, honorary president of the Fédération Médicale Belge, the number of doctors in Belgium has risen from 3,000 in 1900 to 6,000 in 1936. This means one doctor for every 1,333 inhabitants, the population of Belgium being put at eight millions. There is one doctor for every 800 persons in the towns with a population of more than 5,000, and one doctor for every 500 to 600 inhabitants of the four university towns. On the average one doctor dies every week in Belgium and the universities turn out one doctor a day.

In Paris there is one doctor to every 576 inhabitants, the average for the whole of France being 1 to every 1,600. There are some regions in which there is only one doctor to every 78,000, and in Finistère one to every 13,700 inhabitants.

On the occasion of the centenary of the birth of the famous German Professor Ernst von Bergmann on December 16th a memorial exhibition was held in the Kaiserin Friedrich Haus, Berlin, in which articles illustrating anaesthesia, *x* rays, antisepsis, asepsis, and war surgery were displayed.

In celebration of his seventy-fifth birthday Professor August Bier has been awarded the shield of nobility by the Chancellor of the Reich.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

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The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh* ; telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin* ; telephone 62550 Dublin).

QUERIES AND ANSWERS

Mongolism

"J. D." writes: Have any readers used pituitrin or thyroid extract in the treatment of mongolism with favourable results? Also, is any other medicinal form of treatment likely to benefit?

School for Psychoneurotic Girl

"X. Z. X." asks for information concerning a school or schools suitable for a girl of 14 suffering from psychoneurosis (somnambulism and automatism) where psychological treatment would be given.

Nocturnal Cramp

"ALPHA" writes: I thank the readers who, either in your columns or by private letters, have answered my query about nocturnal cramp. I have taken certain remedies recommended, but without effect, and I have noted certain recommendations which had already been tried without effect. The only course which might be successful is to study the *cause* in a clinic with a laboratory attached. It may then be possible to treat it by prevention rather than by antidotes.

Vasospasm after Charcoal Treatment

Dr. ELI DAVIS (London, S.W.10) writes in reply to Mr. A. F. Cowan (*Journal*, December 12th, 1936, p. 1241) on intravenous charcoal treatment: I would point out that in a series of 800 intravenous charcoal injections (see *Brit. J. Derm. Syph.* (1936), **48**, 484, and *Lancet* (1936), **2**, 1266) many of them given for septic conditions, the reaction he describes did not occur, although various other reactions were noted.

LETTERS, NOTES, ETC.

Remedy for Sea-sickness

Dr. W. H. DIEFFENBACH (New York City) writes to say that for thirty years he has prescribed the following treatment to patients about to sail across the Atlantic. "The remedy consists of apomorphine in 1 in 10,000 solution dispensed in two 8-ounce bottles for the to-and-fro trip. The patient is instructed to sip the medicine slowly whenever the tendency to vomiting or nausea occurs. There is immediate relief, and the sipping can be resumed if the symptoms recur. Judging from the yearly demand for this prescription the remedy is efficient."

Medical Work in Newfoundland

The tenth annual report of the Grenfell Association of Great Britain and Ireland reviews the medical work undertaken in Labrador and Northern Newfoundland. It comprises the

administration of five hospitals, six nursing stations, four orphanage boarding schools and twelve summer schools, the control of various hospital and other steamers, and the promoting of industrial, educational, and agricultural work. Lecturing tours in England have been conducted during the year to instruct the public in the vast scope of the undertaking and the excellent results achieved; some details of these are included in this report. For instance, 818 in-patients have been treated in St. Anthony's Hospital, and of the 3,468 out-patients dealt with the large majority were visited in their homes by doctors and nurses travelling by boat or by dog-teams. Dr. C. Hogarth Forsyth contributes a graphic account of the nature of the activities carried on at St. Mary's River Station, Labrador, with special reference to the educational and medical treatment of children and the journeys of the staff to outlying districts. Illness prevented Sir Wilfred Grenfell from contributing his usual account, but this omission has given an opportunity for others of his devoted band to reveal how difficulties are being overcome in developing medical and other amenities in a lonely part of the Empire.

Painless Labour

Mr. S. M. WELLS, F.R.C.S.Ed. (Valparaiso), writes: Some years ago I had a case similar to the one reported in the *Journal* of September 26th, 1936 (p. 627), by Dr. T. B. Prys-Jones, but of course the circumstances were not the same. A primipara who had engaged me to attend her had her nurse sleeping in the house for convenience. One morning at about 3 o'clock I was called urgently by the nurse saying that the child was about to be born. On my arrival the patient said she had gone to sleep as usual the night before. Shortly before I was called she woke up with a feeling that the bowels were going to move. She went to the w.c., and felt "a lot of water" come away; she had no pain. She called the nurse to tell her what had happened. On looking, the nurse saw the perineum was bulging; the child was born within half an hour of my arrival in the house.

The Saliva in Diphtheria

Dr. CHARLES J. HILL AITKEN (Rotherham) writes: We are warned that, in taking a swab from a case of suspected diphtheria, we must avoid getting the swab covered with saliva. The uselessness of a swab so covered was brought home to me when a small child in whose case the laboratory report was "negative" died of acute heart failure a day or two after the report came through. The swab was taken under great difficulty, and I could see it was covered with saliva. It strikes me that, if the micro-organism of diphtheria will not grow under the favourable circumstances of the laboratory because of saliva, the organism of diphtheria exploded into the air from a coughing patient will not have much chance of carrying infection, provided the inhibiting saliva is enveloping the organism. Further, the saliva bathing the tonsils will also act locally as an inhibitory agent and the patient supply his or her natural antiseptic. There are no doubt means by which the saliva can be encouraged to flow, and these means should be adopted, in addition, of course, to those found by experience to be of value in diphtheria.

Nursery Schools for Distressed Areas

A report on emergency nursery schools for children in the distressed areas is issued by the Save the Children Fund, 20, Gordon Square, London, W.C.1. This describes the work done for some three years past in establishing and maintaining nursery schools for children aged 2 to 5 who are in special danger of suffering by reason of the economic situation. Nursery schools have been set up under the auspices of the Fund at Newcastle, North Shields, Sunderland, Middlesbrough, and Leeds in the Northern counties, at Merthyr Tydfil and Brynmawr in South Wales, and at Hoxton in London. They have been the subject of commendation in the official report of the Chief Medical Officer of the Ministry of Health, and the Commissioner for the Special Areas in England and Wales has agreed to make grants to the Emergency Open-air Nurseries Committee of the Save the Children Fund for the provision and equipment of further nursery schools in the Special Areas.

The Criminology of Twins

The hereditary factor in criminal behaviour is being given increasing attention by criminologists, especially on the Continent. Dr. Friedrich Stumpfl (*Die Ursprünge des Verbrechens*, Leipzig, Georg Thieme, M. 5.80) considers that one of the most promising lines of approach to the understanding of criminal heredity is the study of twins. His book consists chiefly of an account of the criminal history of various pairs of twins one or both of whom has committed crime. He concludes, among other things, that similarity of twins is a matter of degree. Concordance of the first degree, in his classification, means that both twins are convicted of crime. Concordance of the second degree—similarity in the gravity of the offence—is shown by the conviction of both partners either together or on a series of later occasions. Concordance of the third degree is when the partners tend to commit the same offences. The fourth and fifth degrees concern respectively similarity of social behaviour and its results, which may not in themselves be unlawful, and similarity of the deeper characteristics of the psyche. Discordance is similarly graded. Dr. Stumpfl draws a sharp distinction between the complete similarity of disposition observed in uniovular as opposed to the complete dissimilarity of binovular twins. The uniovular recidivist is surprisingly similar to his twin through all stages of concordance. It is also striking that offenders with only one conviction nearly always differ from one another in the manner of their offence, although there is no pronounced difference in this respect between similar and dissimilar twins. Uniovular offenders of this class are more alike in their offences than binovular offenders. Dr. Stumpfl's chief object is to distinguish between those criminals who are capable of being influenced by proper treatment and those who are not. For the latter he advocates sterilization; the study of the former should, he thinks, be the basis of a new constructive science of penology.

Switzerland in Winter

The influx of British visitors to Switzerland this winter (writes a medical correspondent) is much greater than for several years past, owing no doubt to the recent depreciation of the Swiss franc and the correspondingly greater purchasing power of the pound sterling. Many of the hotels in places celebrated for winter sports have had to cater for large ski-ing and skating parties, and over the Christmas week these enjoyed brilliant sunshine throughout the greater part of Switzerland, although the warmth of the sun tended to make the surface of the snow rather hard for perfect ski-running. These conditions will be remedied by the further fall of snow expected soon. Of greater importance from the therapeutic point of view is the fact that patients suffering from tuberculosis can now enjoy, at reasonable cost, the curative benefits of sun and altitude which the Swiss resorts, like Davos, Leysin, and Montana, provide. At Leysin the clinics of Dr. Rollier show an increasing number of English patients, and several of the clinics which had of late been temporarily closed have been recently reopened. It may be recalled that Dr. Rollier, who has been one of the most successful exponents of the conservative treatment of bone and joint tuberculosis by general exposure to sunlight and special orthopaedic appliances, inaugurated these methods at Leysin some thirty-three years ago.

Guy's Hospital Gazette: A Jubilee

Guy's *Gazette* has celebrated its jubilee with a special number that will be of interest to medical readers whether they are Guy's men or not. Dr. L. G. Housden, who was editor in 1925, points out that it was the first gazette to be run by students of a London hospital, the second to appear coming from St. Thomas's. It was suspended in 1880 as a result of a dispute between the editor and the governors—or, as the *Gazette* put it, of "an excess of zeal." Since its revival in 1887 the *Gazette* has progressed from strength to strength, and is now a model of what a hospital magazine should be. Among the many interesting contributions in the jubilee issue of December 19th are "The History of the Physical Society," by Dr. J. M. H. Campbell; "Students and Politics," by Mr. H. L. Eason; "Dickens's Medical Students," by Mr. T. B. Layton; and "Ah, My Boy!", by Wing Commander H. M. Stanley Turner, who unfolds a tale that is worth telling.

British Pharmacopoeia Addendum, 1936

The official publishers (Constable and Co., Ltd., 10–12, Orange Street, London, W.C.2) inform us that copies of the *Addendum, 1936*, to the *British Pharmacopoeia, 1932*, are now available, price 5s. each, plus postage (inland 6d., abroad 7d.). An editorial article on the *Addendum*, which became official on December 29th, 1936, was published in our issue of October 24th, 1936 (p. 826).